

DCR-TRV940/TRV940E/TRV950/TRV950E

RMT-811

SERVICE MANUAL

Ver 1.3 2005.08

Revision History



Photo: DCR-TRV950

J MECHANISM

US Model
Canadian Model
DCR-TRV950
AEP Model
DCR-TRV940E/TRV950E
UK Model
DCR-TRV950E
East European Model
North European Model
Russian Model
DCR-TRV940E/TRV950E
E Model
DCR-TRV940/TRV940E/TRV950/TRV950E
Hong Kong Model
DCR-TRV940/TRV950E
Australian Model
DCR-TRV950E
Chinese Model
DCR-TRV940E
Korea Model
DCR-TRV940
Tourist Model
DCR-TRV940/TRV940E

Link

SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
SERVICE NOTE	FRAME SCHEMATIC DIAGRAMS	REPAIR PARTS LIST
DISASSEMBLY	SCHEMATIC DIAGRAMS	

- For ADJUSTMENTS (SECTION 6), refer to SERVICE MANUAL, ADJ (992997851.pdf).
- For MECHANISM ADJUSTMENTS, refer to the "DV MECHANICAL ADJUSTMENT MANUAL VI **J MECHANISM**" (9-929-807-11).
- Reference No. search on printed wiring boards is available.
- Table for differences of function of each model.
- When the laser unit (D501) is repaired.
Make sure to follow the items of "NOTE ON HANDLING THE LASER DIODE".

On the DB-014, VC-288 boards

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the DB-014, VC-288 boards.

Therefore, schematic diagram, printed wiring board, waveforms, mounted parts location and electrical parts list of the DB-014, VC-288 boards are not shown.

The following pages are not shown.

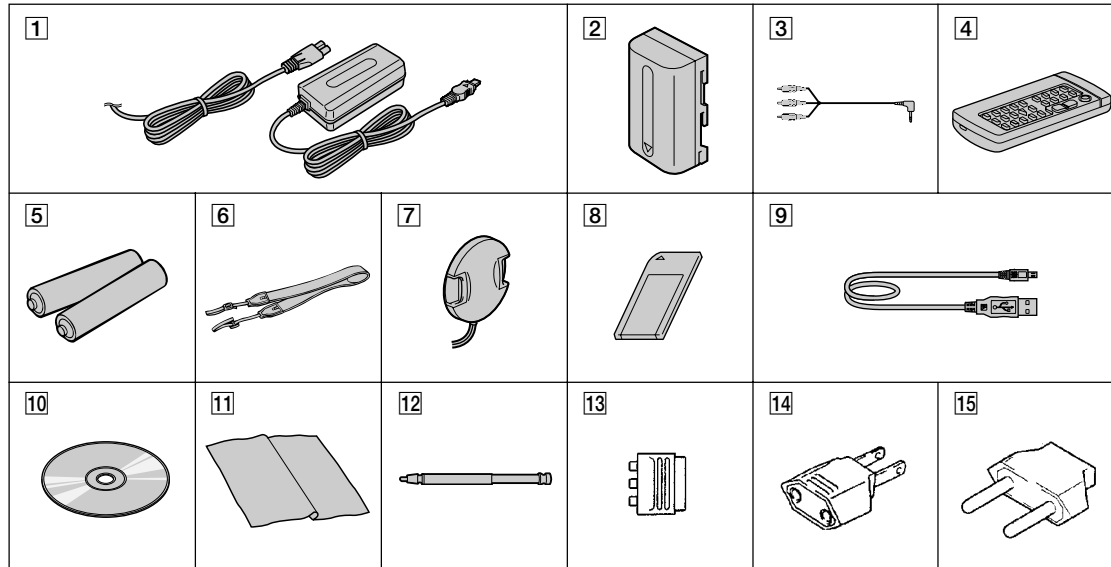
Schematic diagram	Pages 4-13 to 4-64	Mounted parts location	Pages 4-132 to 4-135
Printed wiring board	Pages 4-93 to 4-100	Electrical parts list	Pages 5-17 to 5-23, 5-29 to 5-36
Waveforms	Pages 4-127 to 4-129		

Mini **DV** Digital
Video
Cassette

DIGITAL VIDEO CAMERA RECORDER

SONY®

Supplied accessories



- | | | |
|---|--|---|
| 1 AC-L10A/L10B/L10C AC power adaptor (1), power cord (1) | 7 Lens cap (1) | 13 21-pin adaptor (1)
AEP, UK, EE, NE, RU |
| 2 NP-FM50 battery pack (1) | 8 "Memory Stick" (1) | 14 2-pin conversion adaptor (1)
E, HK |
| 3 A/V connecting cable (1) | 9 USB cable (1) | 15 2-pin conversion adaptor (1)
JE |
| 4 Wireless Remote Commander (1) | 10 CD-ROM (SPVD-008 USB Driver) (1) | |
| 5 Size AA (R6) battery for Remote Commander (2) | 11 Cleaning cloth (1) | |
| 6 Shoulder strap (1) | 12 Stylus (1) (DCR-TRV950/TRV950E only) | |

Table for differences of function

Model	DCR-TRV940	DCR-TRV940E	DCR-TRV950	DCR-TRV950E
Destination	E, HK, KR, JE	AEP, EE, NE, RU, E, CH, JE	US, CND, E	AEP, UK, EE, NE, RU, E, HK, AU
Color system	NTSC	PAL	NTSC	PAL
Wireless communications	×	×	○	○
BT board	—	—	BT-003 (Note)	BT-003 (Note)

Note: BT-003 board is only replaced as a mounted board.

Therefore, schematic diagrams and printed wiring boards are not shown.

• Abbreviation

AUS : Australian model	EE : East European model	KR : Korean model
CH : Chinese model	HK : Hong Kong model	NE : North European model
CND : Canadian model	JE : Tourist model	RU : Russian model

CLASS 1 LASER PRODUCT
LASER KLASSE 1
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

**ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ!**

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
 - Keep the temperature of the soldering iron around 270°C during repairing.
 - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
 - Be careful not to apply force on the conductor when soldering or unsoldering.

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)



: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
Soldering irons using a temperature regulator should be set to about 350°C.
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

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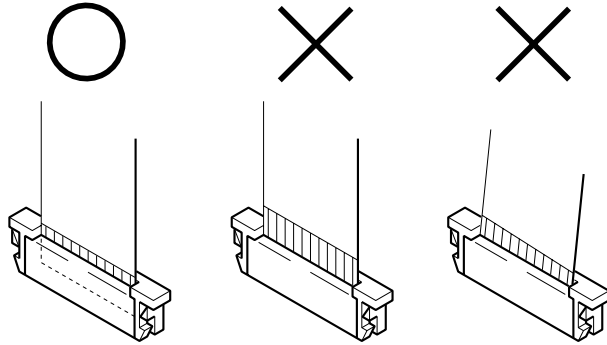
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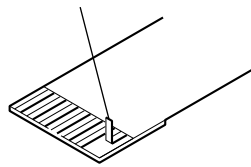
SECTION 1 SERVICE NOTE

1-1. NOTE FOR REPAIR

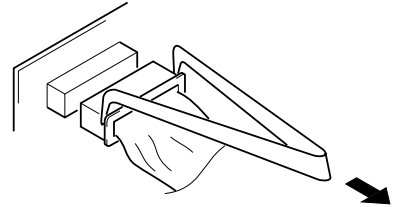
Make sure that the flat cable and flexible board are not cracked or bent at the terminal.
Do not insert the cable insufficiently nor crookedly.



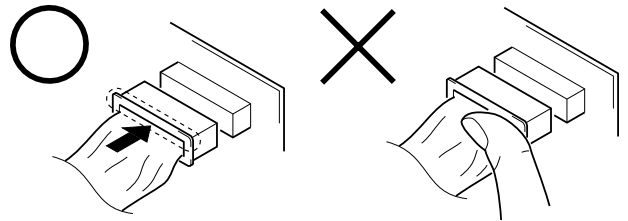
Cut and remove the part of gilt which comes off at the point.
(Be careful or some pieces of gilt may be left inside)



When remove a connector, don't pull at wire of connector.
It is possible that a wire is snapped.



When installing a connector, don't press down at wire of connector.
It is possible that a wire is snapped.



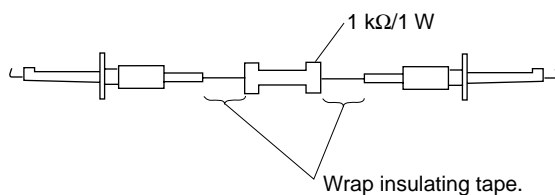
1-2. DISCHARGING OF THE FLASH UNIT'S CHARGING CAPACITOR

The charging capacitor of the Flash unit is charged up to the maximum 300 V potential.
There is a danger of electric shock by this high voltage when the battery is handled by hand. The electric shock is caused by the charged voltage which is kept without discharging when the main power of the unit is simply turned off. Therefore, the remaining voltage must be discharged as described below.

1-2-1. Preparing the Short Jig

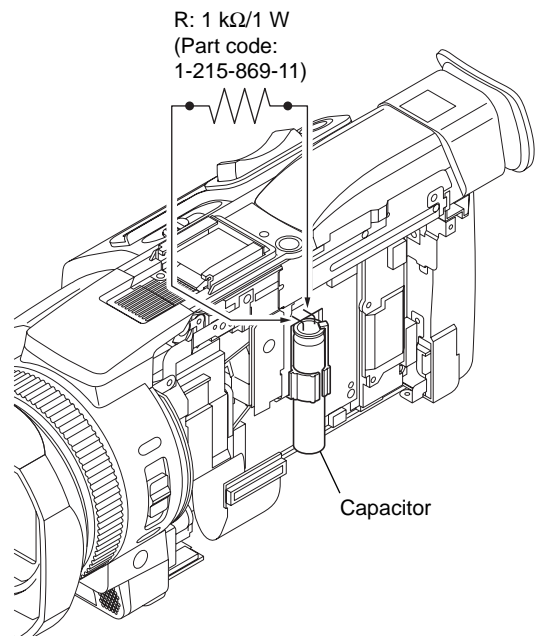
To preparing the short jig, a small clip is attached to each end of a resistor of 1 k Ω / 1 W (1-215-869-11).

Wrap insulating tape fully around the leads of the resistor to prevent electrical shock.



1-2-2. Discharging the Capacitor

Short-circuit between the positive and the negative terminals of charged capacitor with the short jig about 10 seconds.



1-3. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.

These following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.

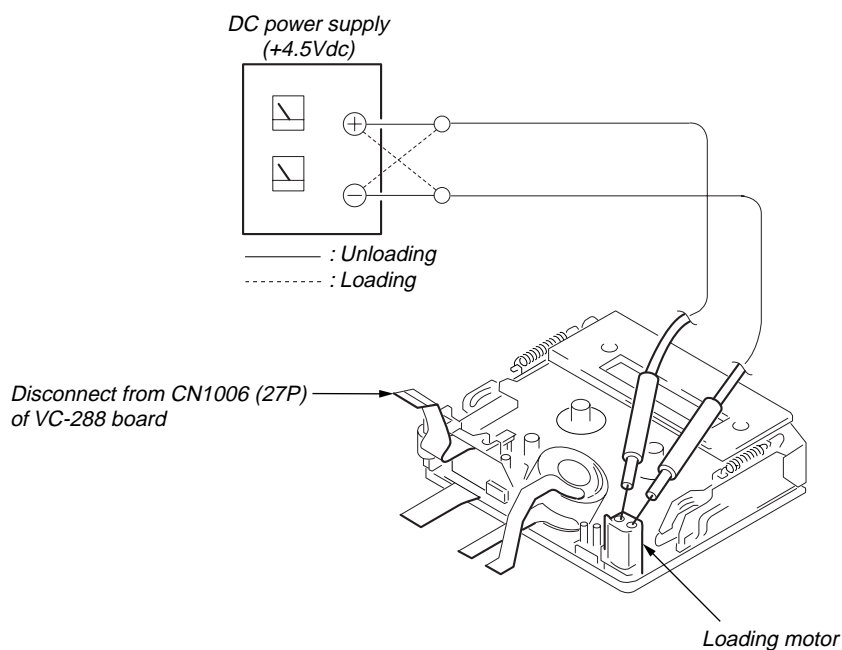
Use the AC power adaptor (AC-L10, AC-VQ800 etc.).

Method 2.

Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the commander switch to the "ADJ" side.

1-4. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

- ① Refer to 2-2 to remove the cabinet (R) block assembly.
- ② Refer to 2-7 to remove the F panel block.
- ③ Refer to 2-11 to remove the battery panel block.
- ④ Refer to 2-13 to remove the ST frame block.
- ⑤ Refer to 2-14 to remove the DB-014 board.
- ⑥ Refer to 2-15 to remove the MD block.
- ⑦ Supply +4.5V from the DC power supply to the loading motor and unload with a pressing the cassette compartment.



1-5. NOTES ON HANDLING THE LASER DIODE [LASER UNIT (D501)]

The laser diode may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.

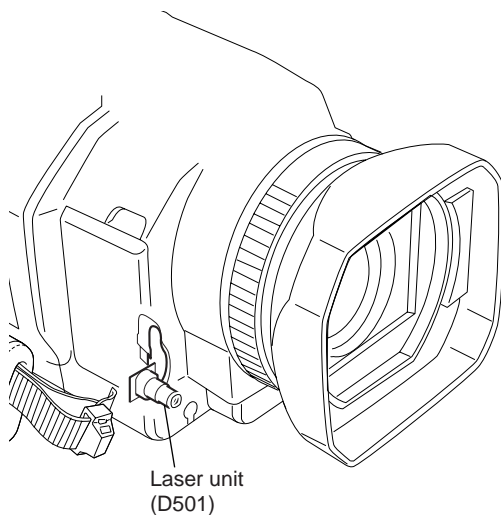
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.

The flexible board is easily damaged and should be handled with care.

1-5-1. Soldering Conditions of Laser Unit (D501)

Temperature of the Soldering Iron	350 °C
Time to Solder	3 seconds
Interval to Solder	Next terminal is soldered after waiting for 1 second

Note: Adjustment is needed when laser unit (D501) is replaced. Refer to “20. Hologram AF Output Adjustment” and “21. Hologram AF Angle Check” of SERVICE MANUAL, ADJ (992997851.pdf).



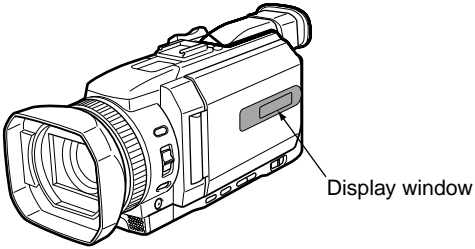
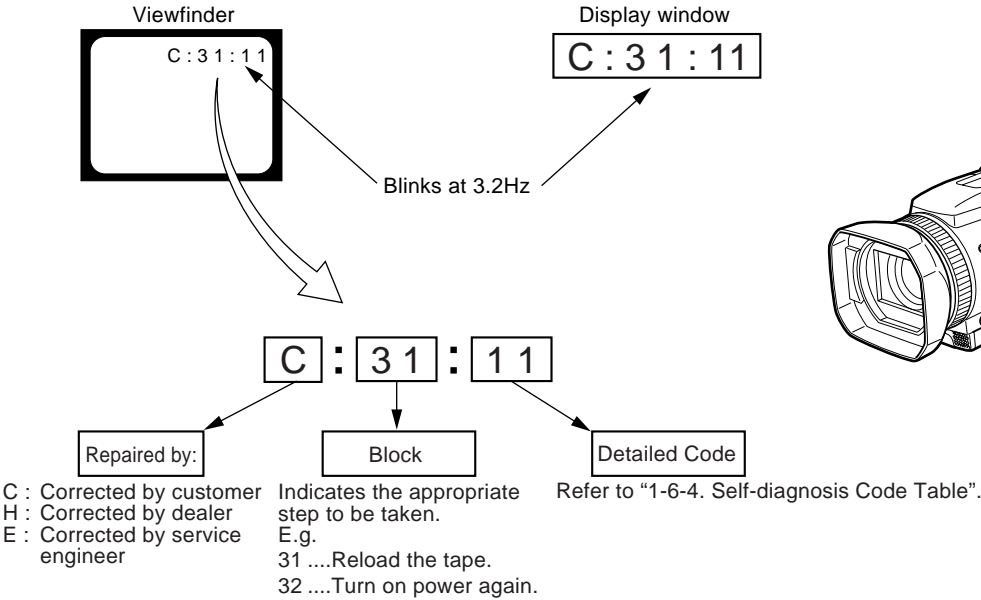
1-6. SELF-DIAGNOSIS FUNCTION

1-6-1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or Display window what to do. This function consists of two display; self-diagnosis display and service mode display. Details of the self-diagnosis functions are provided in the Instruction manual.

1-6-2. Self-diagnosis Display

When problems occur while the unit is operating, the counter of the viewfinder or Display window shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the “repaired by:”, “block” in which the problem occurred, and “detailed code” of the problem.

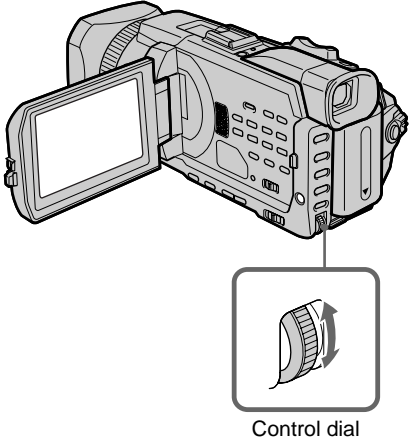
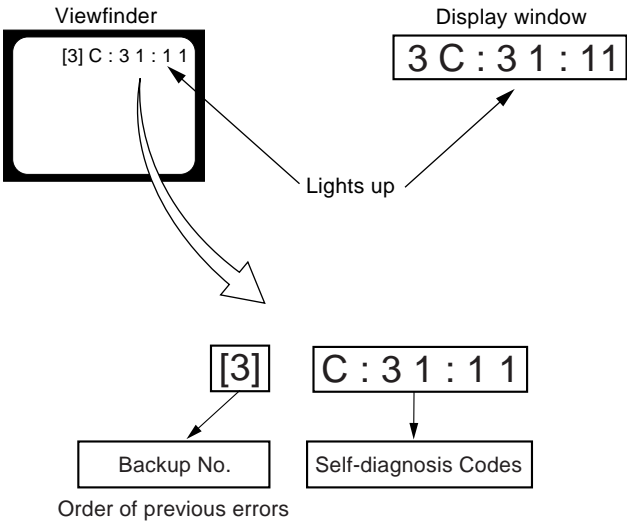


1-6-3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

1. Display Method

While pressing the “STOP” key, set the switch from OFF to “VCR”, and continue pressing the “STOP” key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.



2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

- | | |
|----------------------------|------------------------------|
| [1] : Occurred first time | [4] : Occurred fourth time |
| [2] : Occurred second time | [5] : Occurred fifth time |
| [3] : Occurred third time | [6] : Occurred the last time |

3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The “self-diagnosis display” data will not be erased (reset) when the lithium 3 V supply (CK-116 board BT5201) is removed.

1-6-4. Self-diagnosis Code Table

Self-diagnosis Code				Symptom/State	Correction
Repaired by:	Block Function		Detailed Code		
C	0	4	0 0	Non-standard battery is used.	Use the info LITHIUM battery.
C	2	1	0 0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2	2	0 0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3	1	1 0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning
C	3	1	1 1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3	1	2 0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3	1	2 1	Winding S reel fault when counting the rest of tape.	Load the tape again, and perform operations from the beginning.
C	3	1	2 2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2 3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	2 4	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3	1	3 0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3	1	4 0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3	1	4 2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3	1	1 0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	1	1 1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2 0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2 1	Winding S reel fault when counting the rest of tape.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2 2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2 3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	2 4	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	3 0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4 0	FG fault when starting drum	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3	2	4 2	FG fault during normal drum operations	Remove the battery or power cable, connect, and perform operations from the beginning.
E	2	0	0 0	EEPROM data error	Initialize A, D page data (EEPROM data).
E	6	1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus MR (Pin ⑭, ⑮ of DB-014 board CN1004) when focusing is performed when the focus ring is rotated in the focus manual mode, and the focus motor drive circuit (IC3402 of DB-014 board) when the focusing is not performed.
E	6	1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom MR (Pin ⑩, ⑪ of DB-014 board CN1004) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC3402 of DB-014 board) when zooming is not performed.
E	6	2	0 0	Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE4001 of SE-132 board) peripheral circuits.
E	6	2	0 1	Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE4002 of SE-132 board) peripheral circuits.
E	9	1	0 1	Abnormality when flash is being charged.	Checking of flash unit or replacement of flash unit. (Note)

Note: After repair, be sure to perform "1-7. PROCESS AFTER FIXING FLASH ERROR".

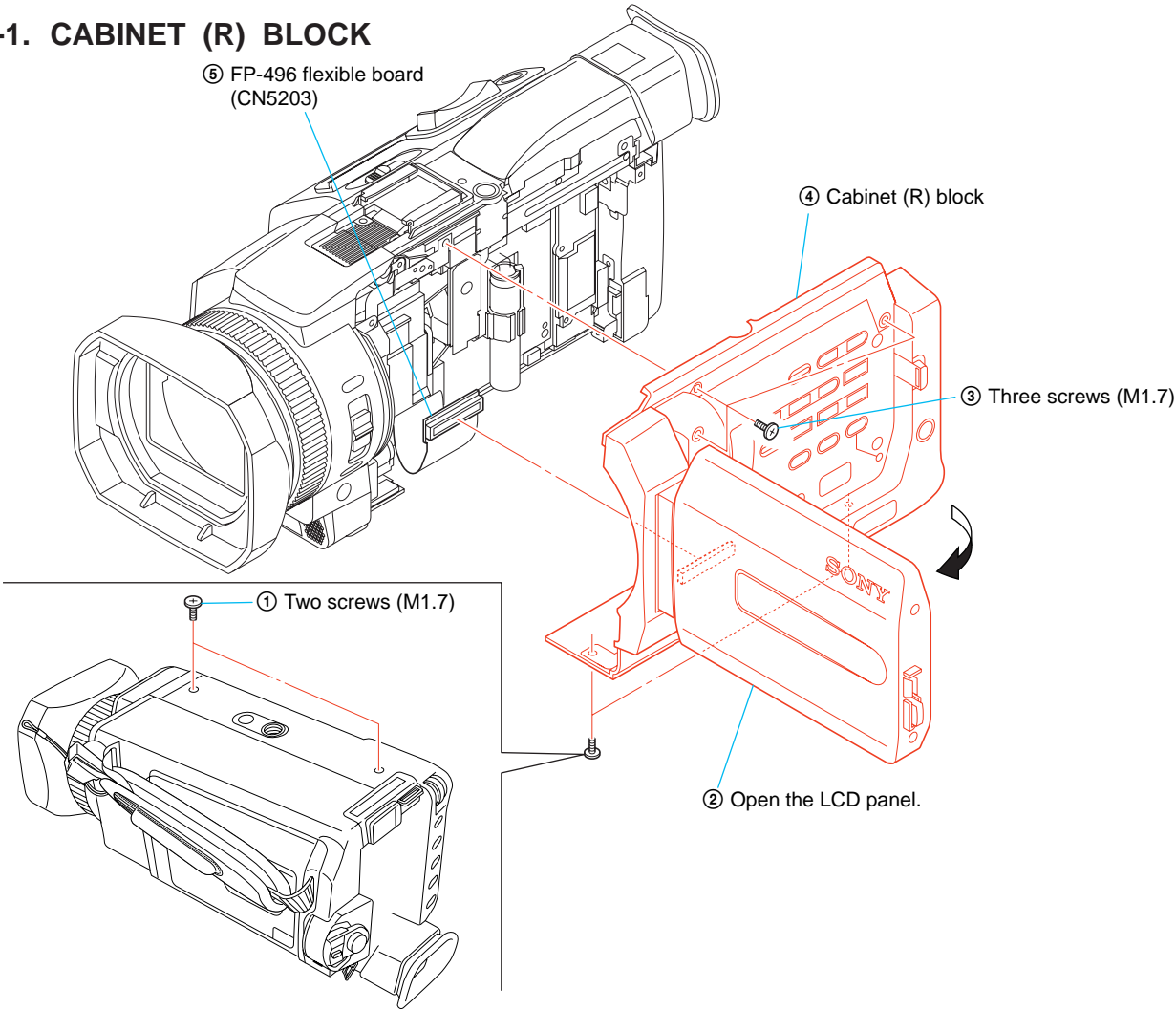
1-7. PROCESS AFTER FIXING FLASH ERROR

When “FLASH error” (Self-diagnosis Code E:91:**) occurs, to prevent any abnormal situation caused by high voltage, setting of the flash is changed automatically to disabling charge and flash setting.
After fixing, this setting needs to be deactivated. Connect the adjustment remote commander and perform the following process.

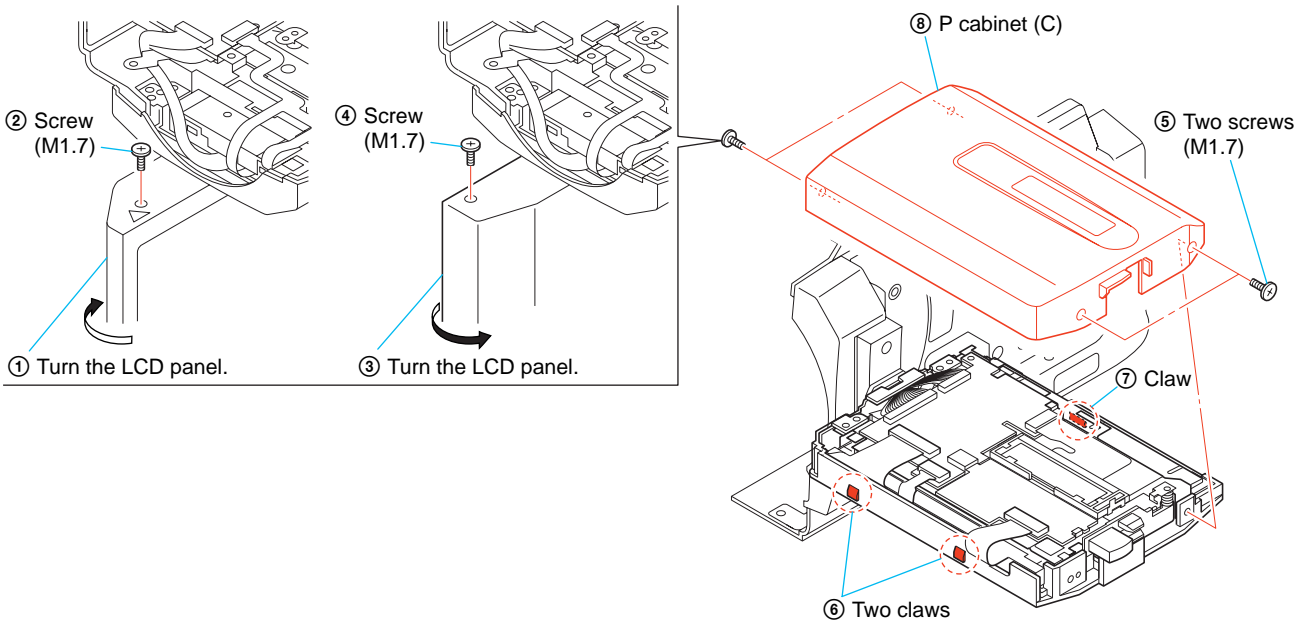
Order	Page	Address	Data	Procedure
1	7	00	80	
2	7	01	80	Press PAUSE button.
3	7	02		Check the data changes to “01”.

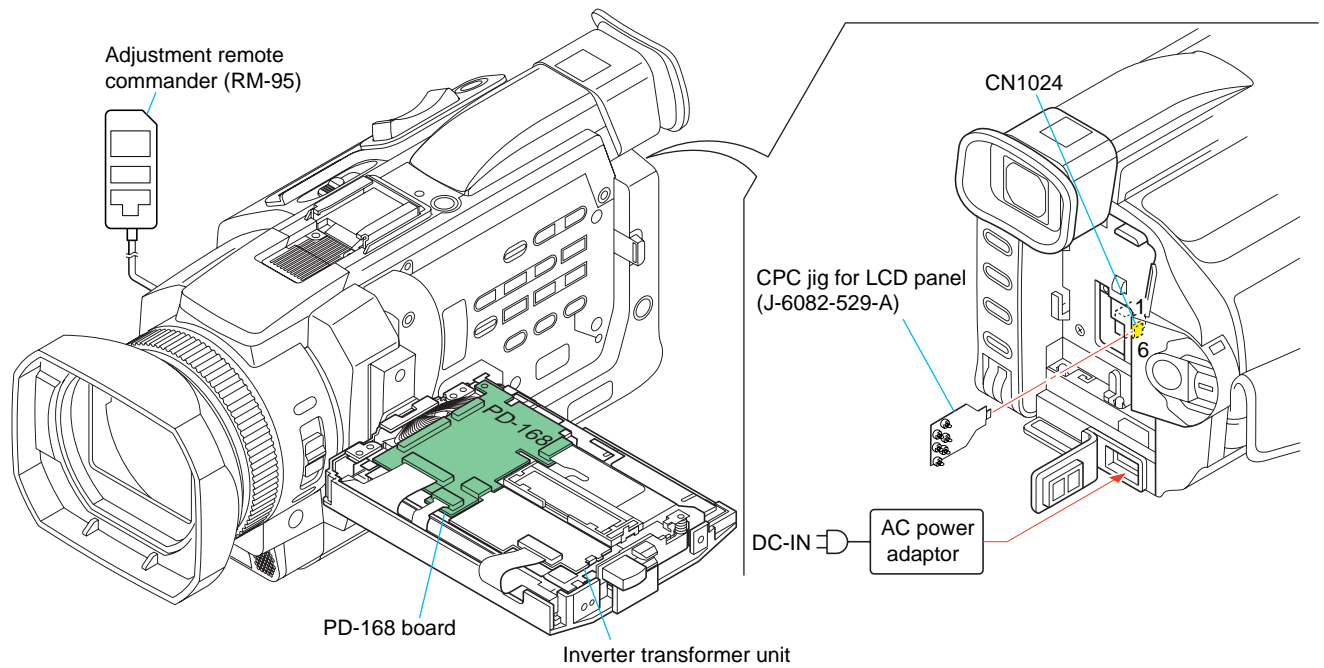
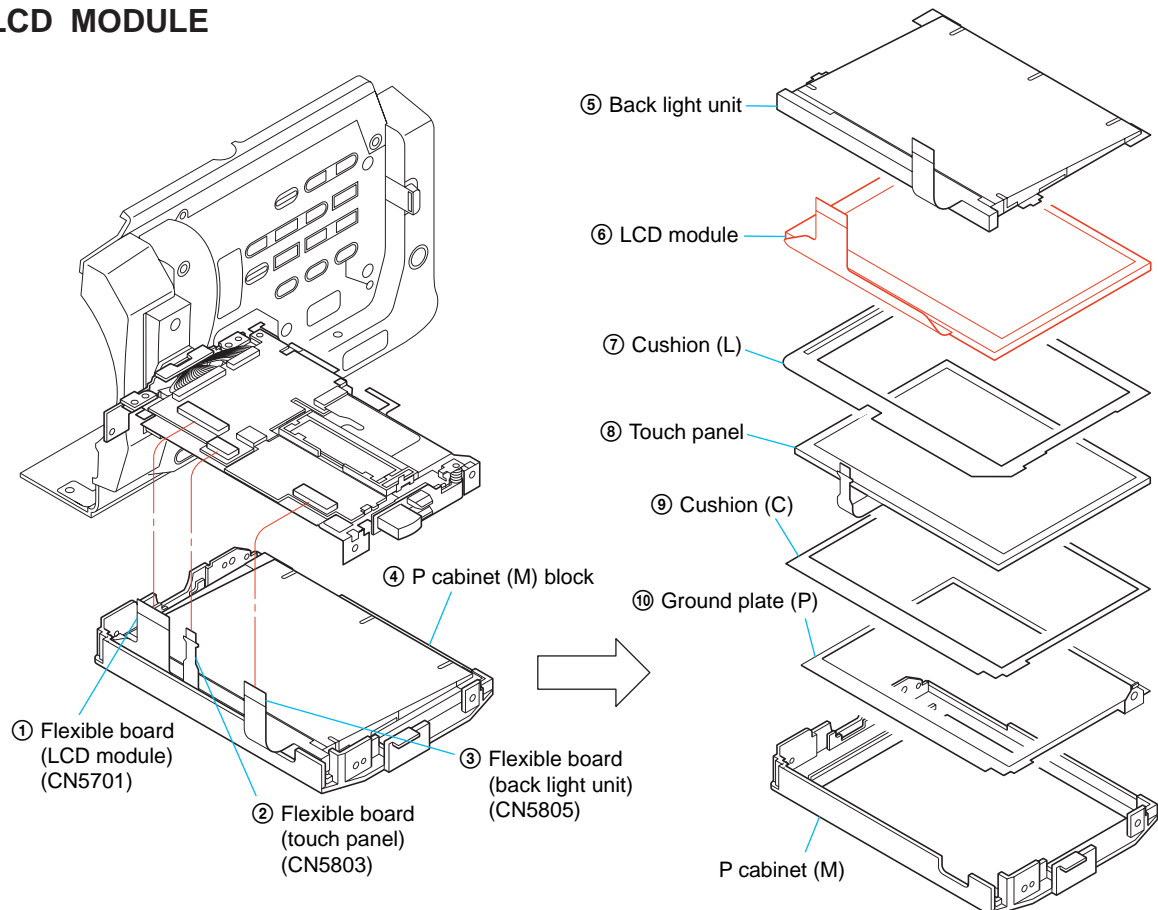
Note: Follow the disassembly procedure in the numerical order given.

2-1. CABINET (R) BLOCK

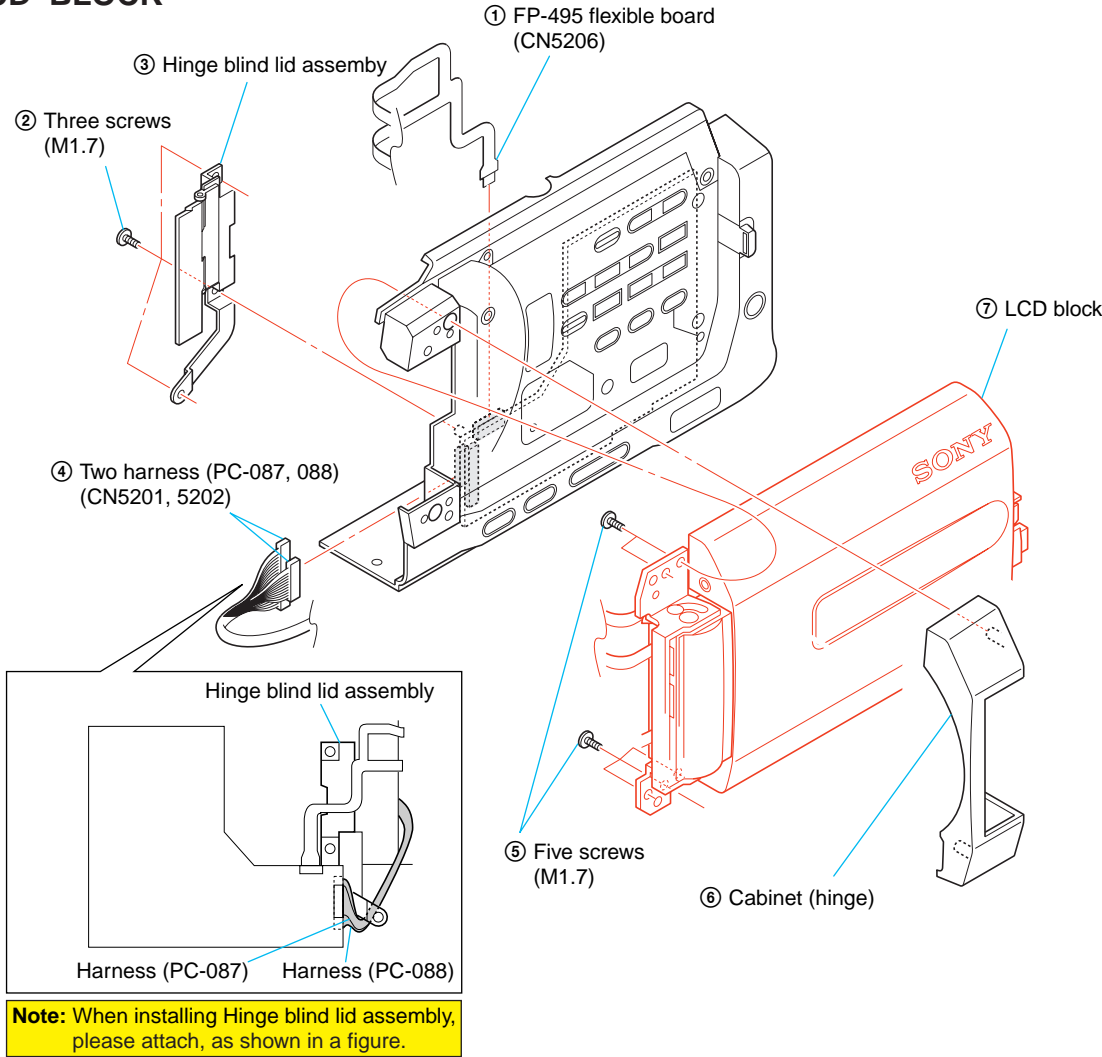


2-2. P CABINET (C)

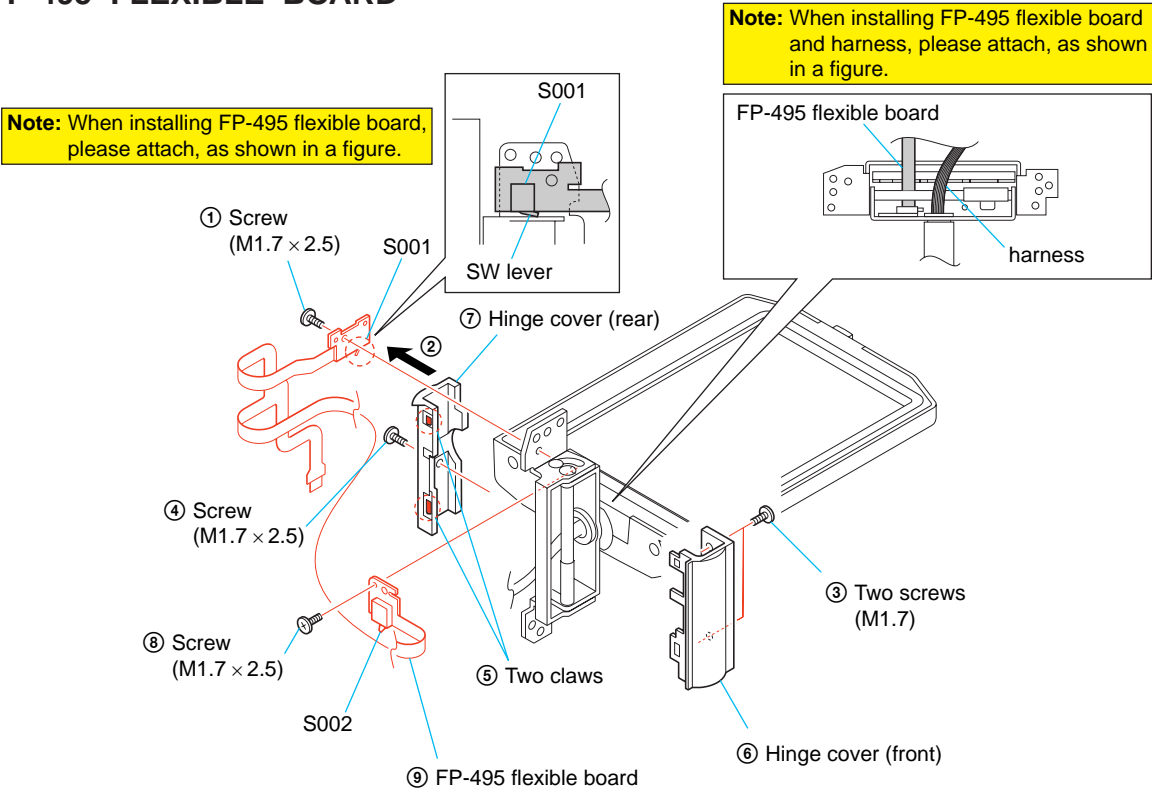


[SERVICE POSITION TO CHECK PD-168 BOARD]**2-3. LCD MODULE**

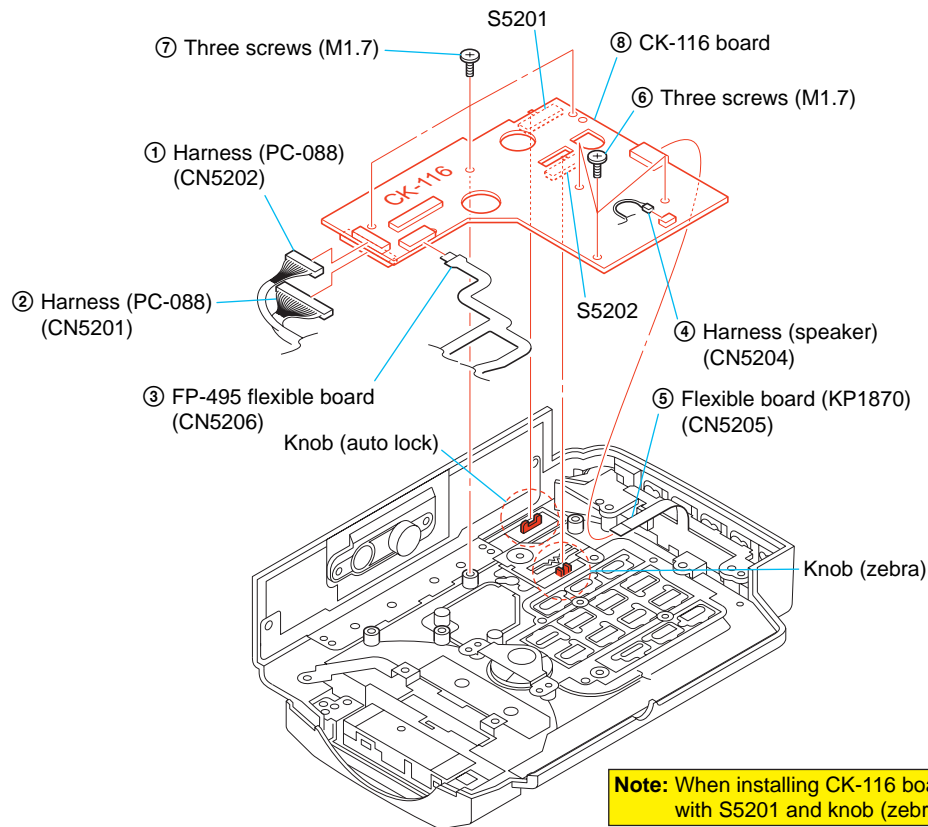
2-4. LCD BLOCK



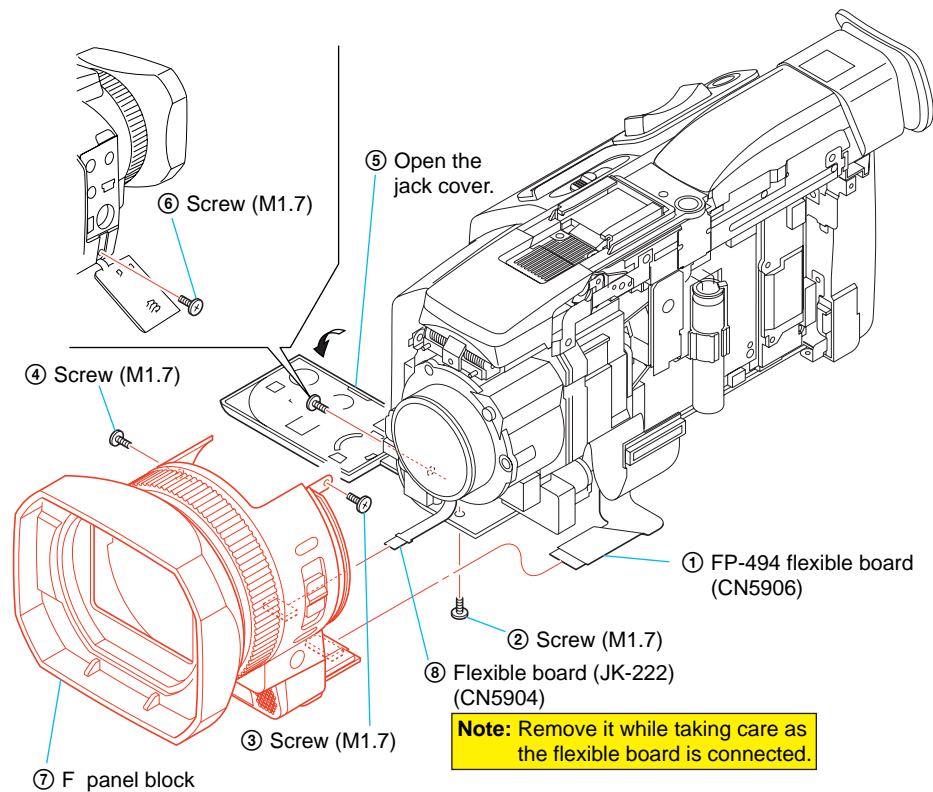
2-5. FP-495 FLEXIBLE BOARD



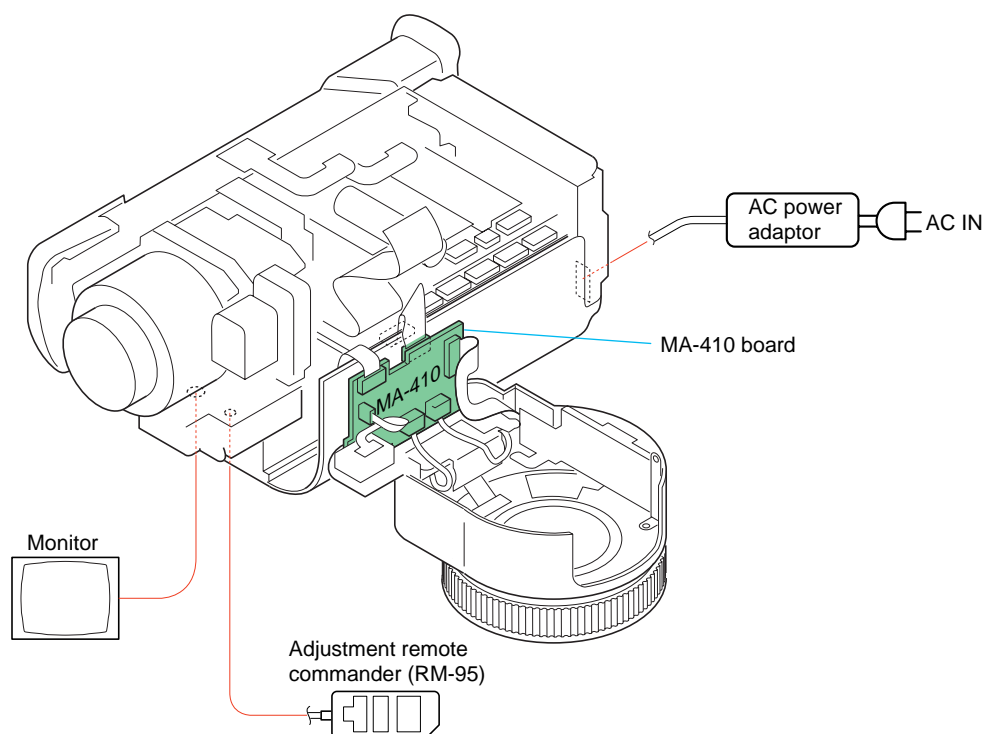
2-6. CK-116 BOARD



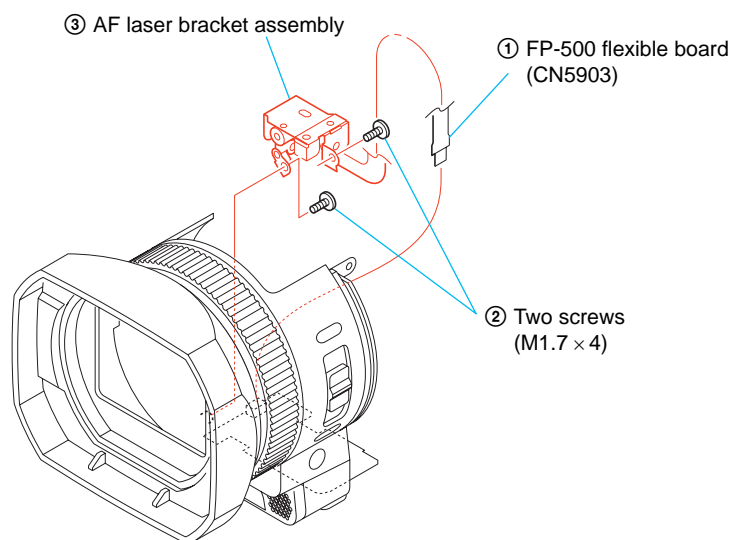
2-7. F PANEL BLOCK



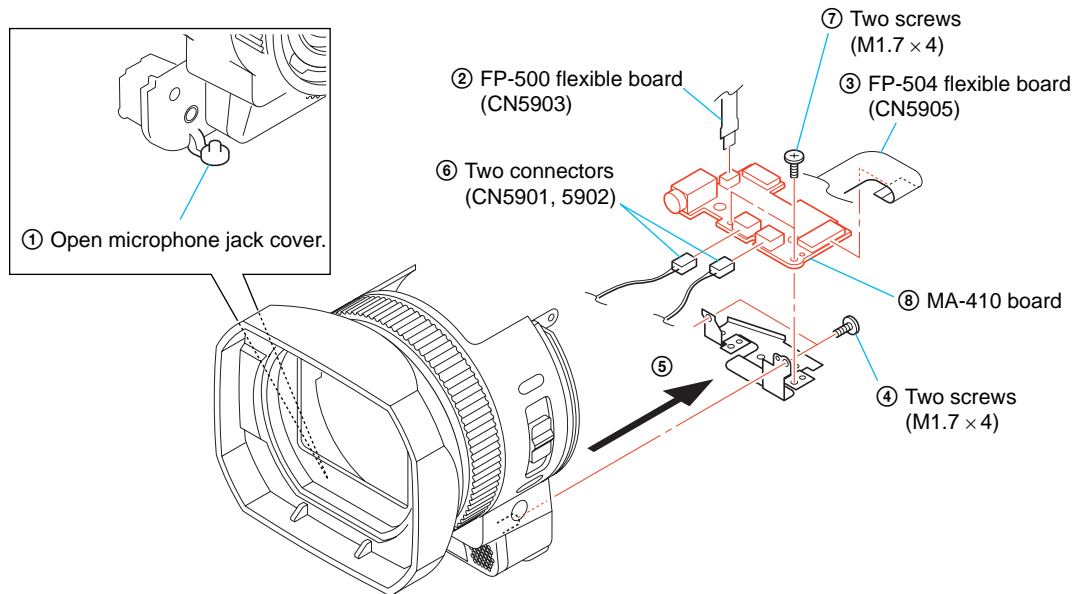
[SERVICE POSITION TO CHECK MA-410 BOARD]



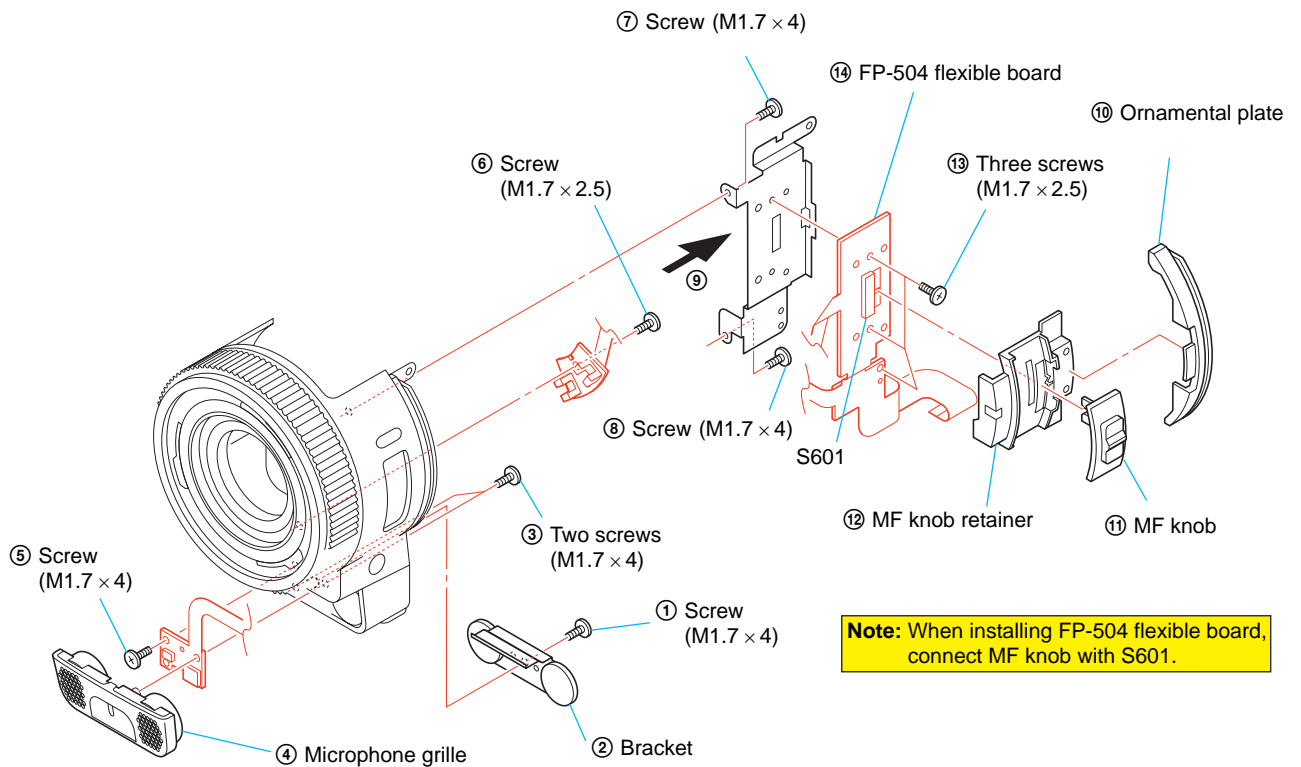
2-8. AF LASER BRACKET ASSEMBLY



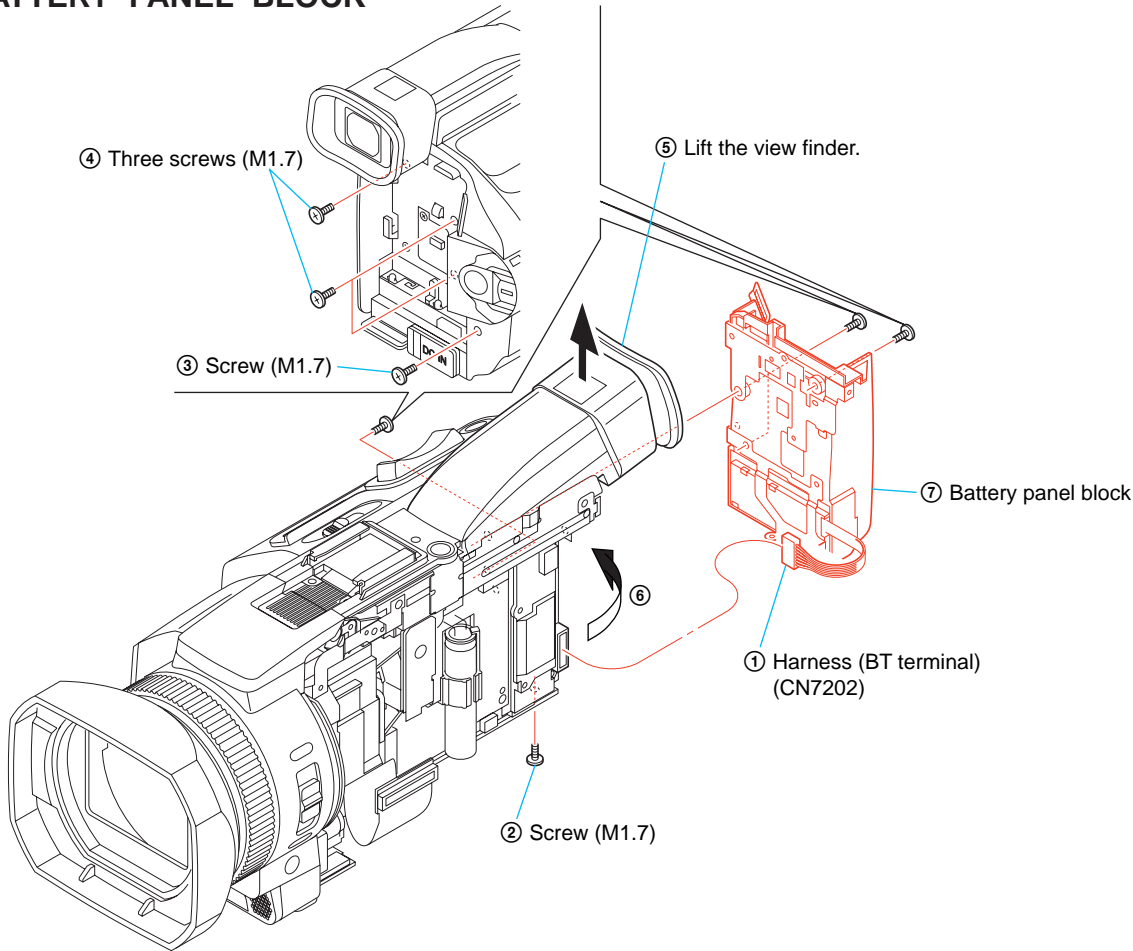
2-9. MA-410 BOARD



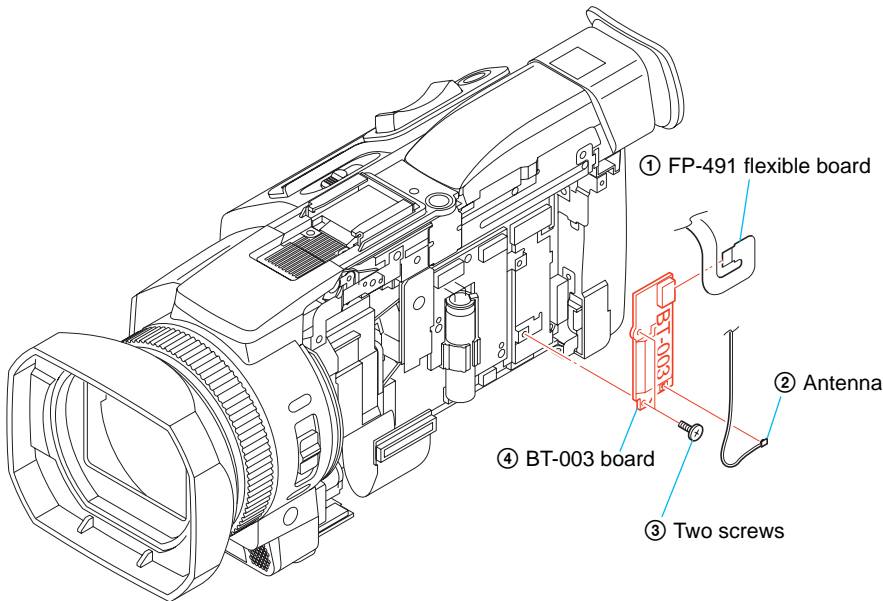
2-10.FP-504 FLEXIBLE BOARD



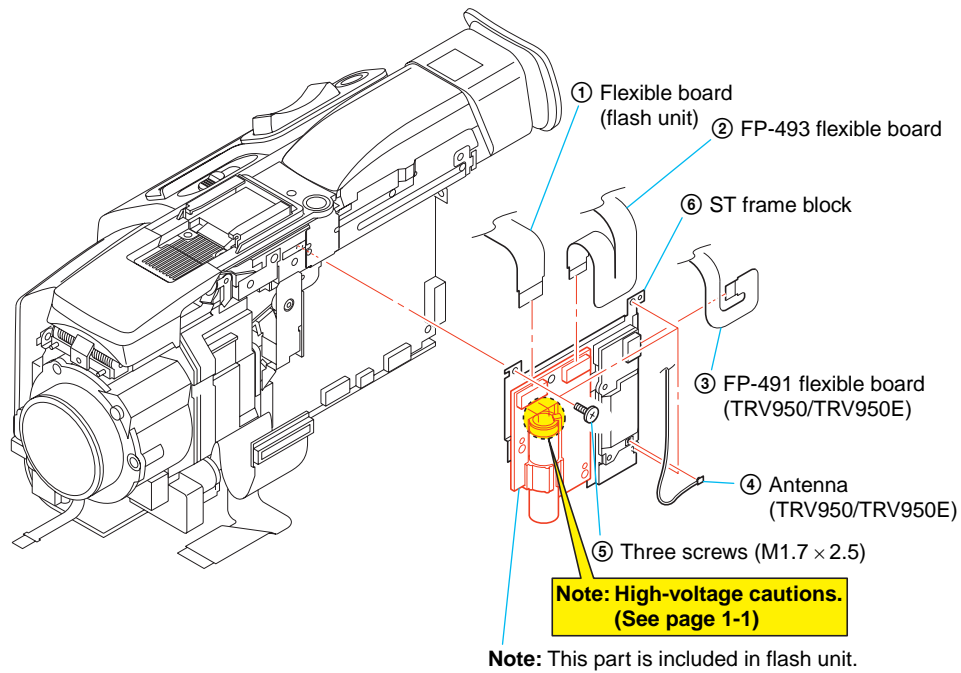
2-11.BATTERY PANEL BLOCK



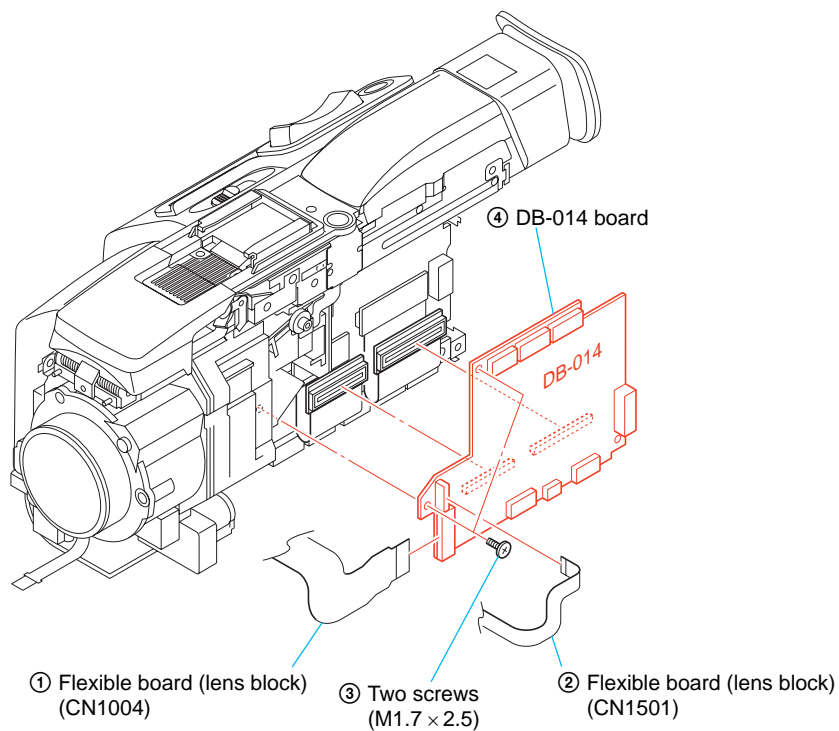
2-12.BT-003 BOARD
(TRV950/TRV950E)



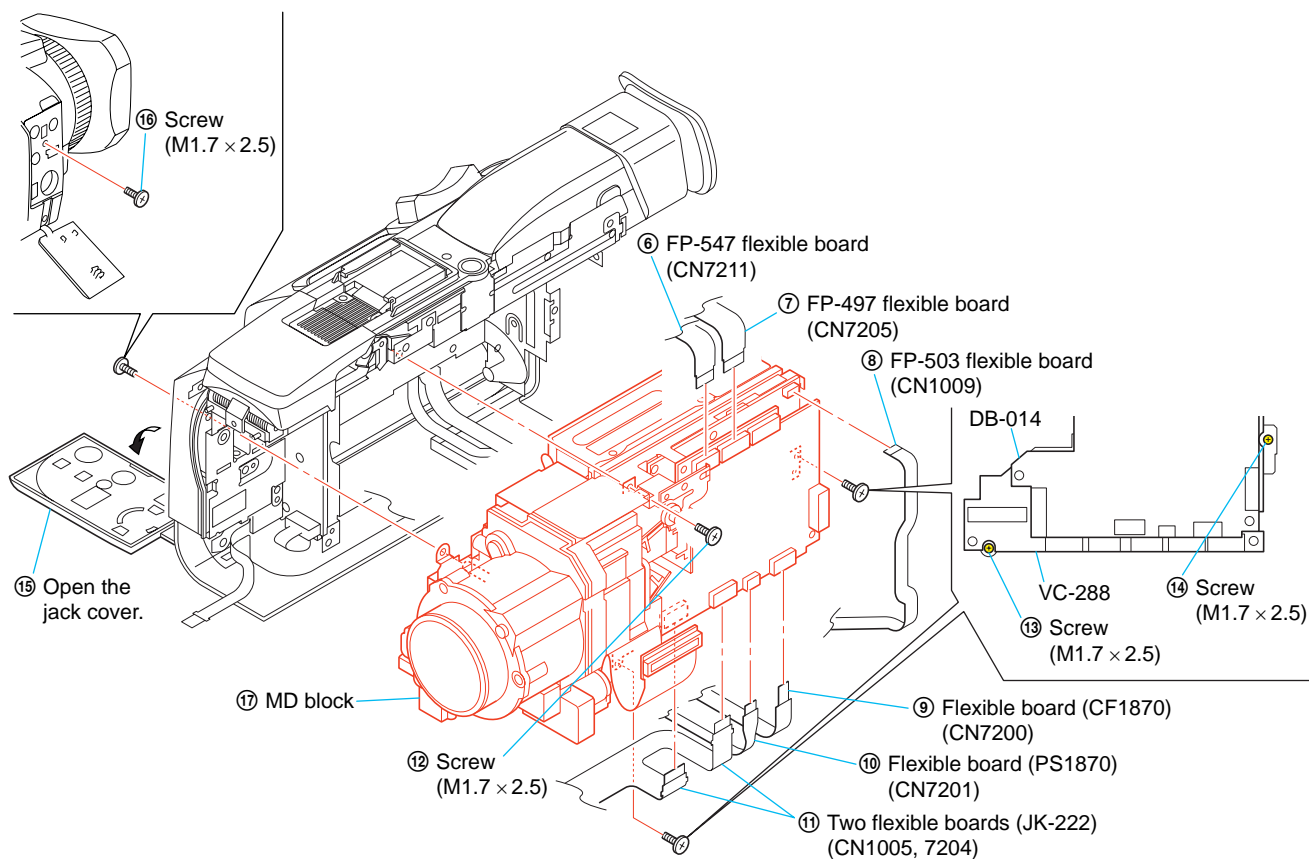
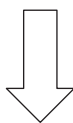
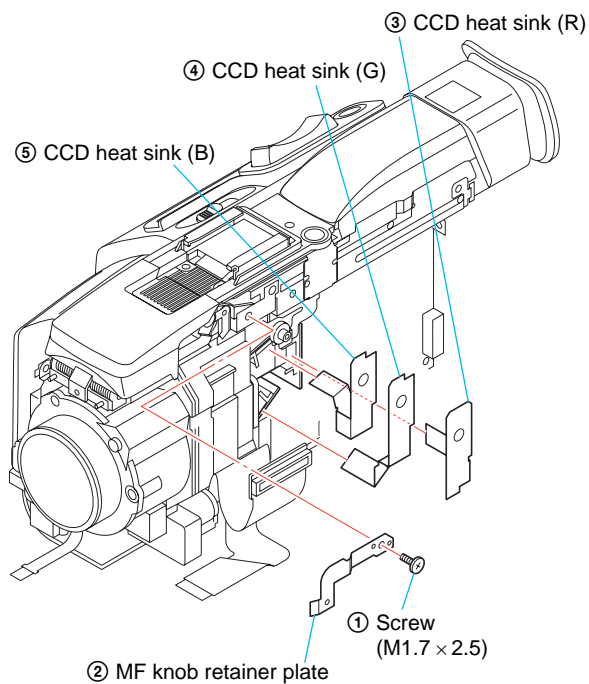
2-13.ST FRAME BLOCK



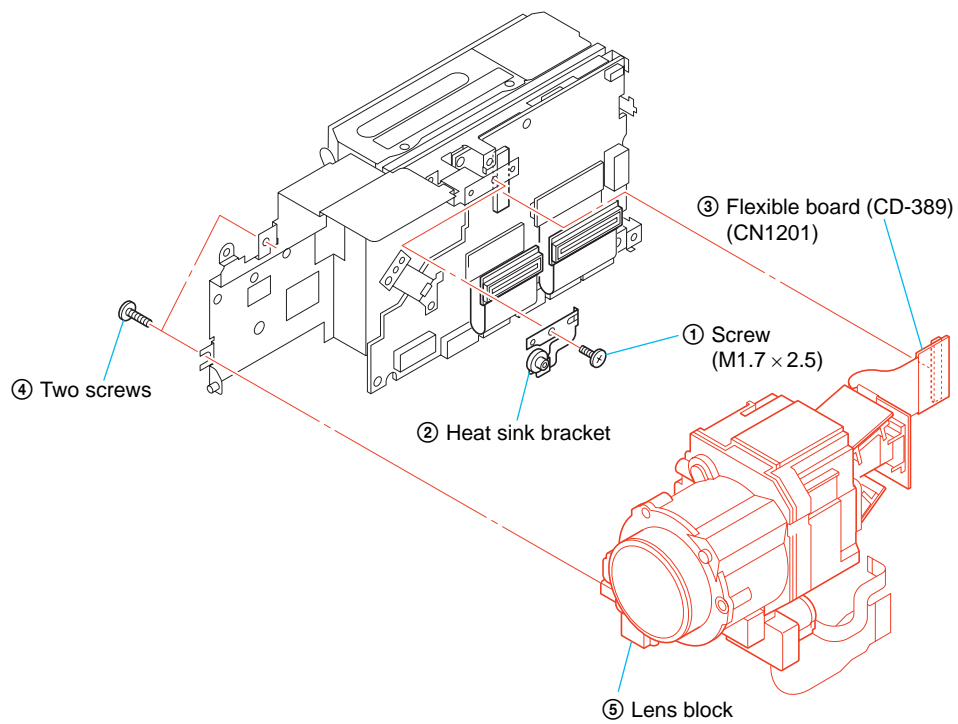
2-14.DB-014 BOARD



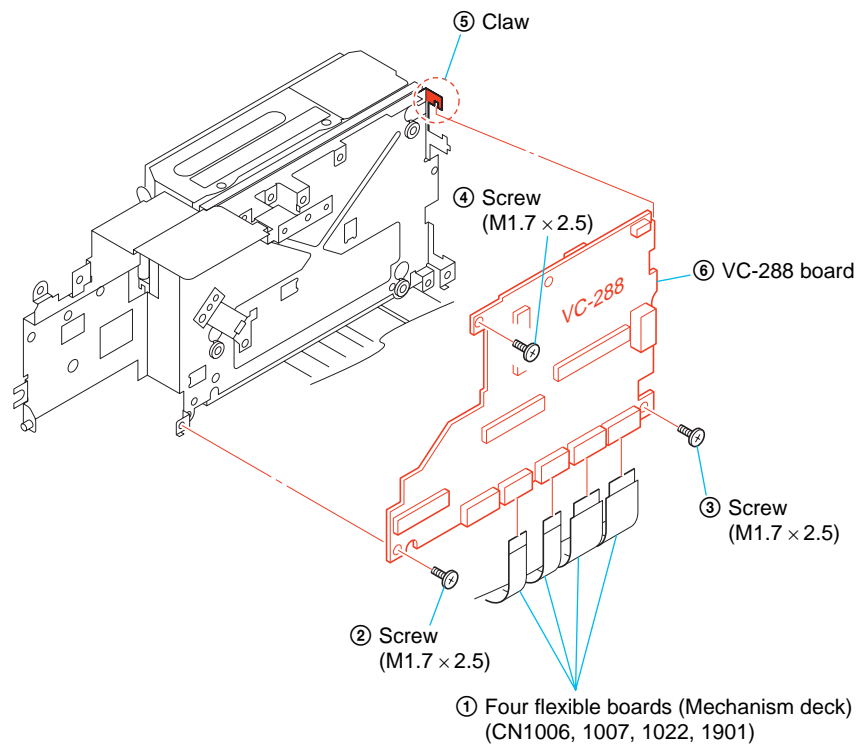
2-15.MD BLOCK



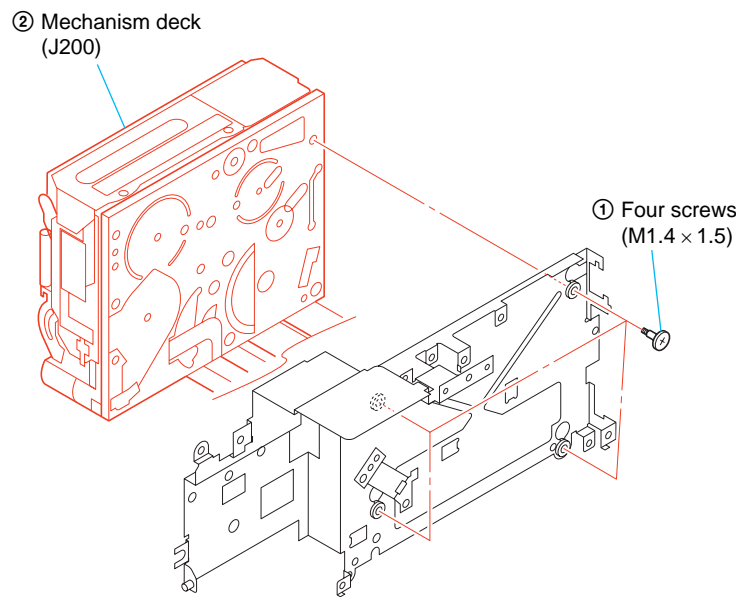
2-16.LENS BLOCK



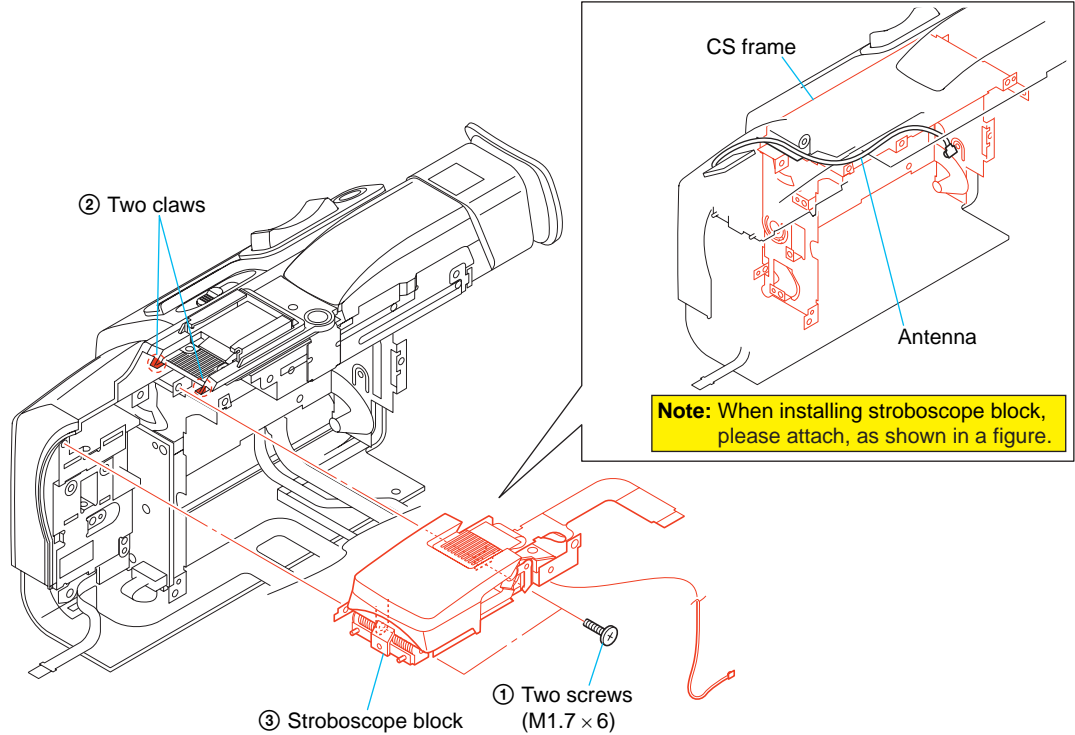
2-17.VC-288 BOARD

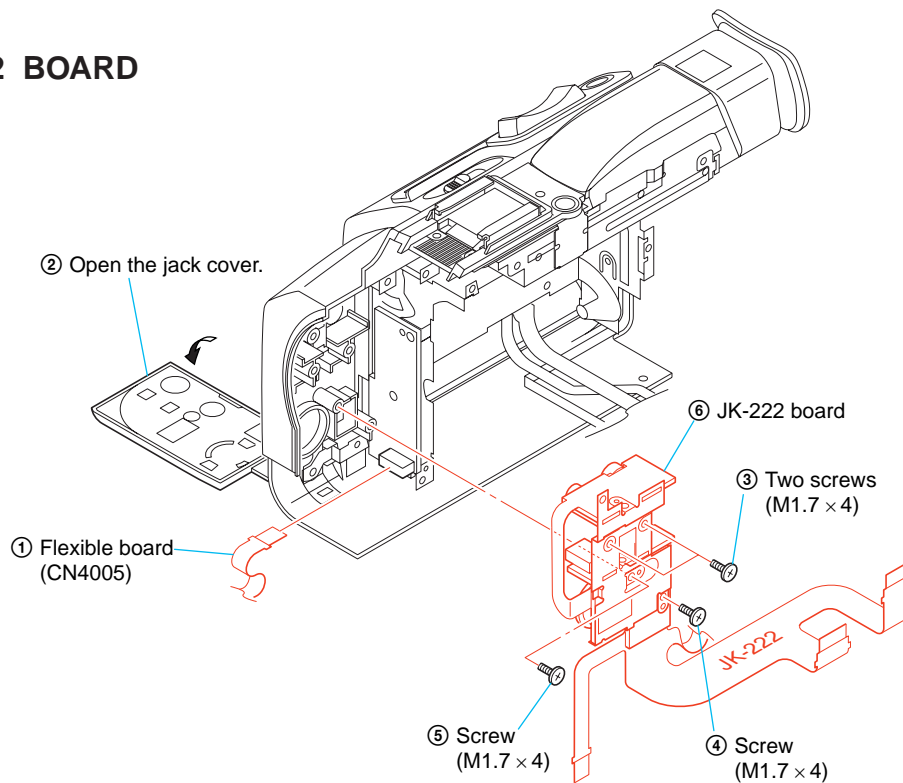


2-18.MECHANISM DECK (J200)



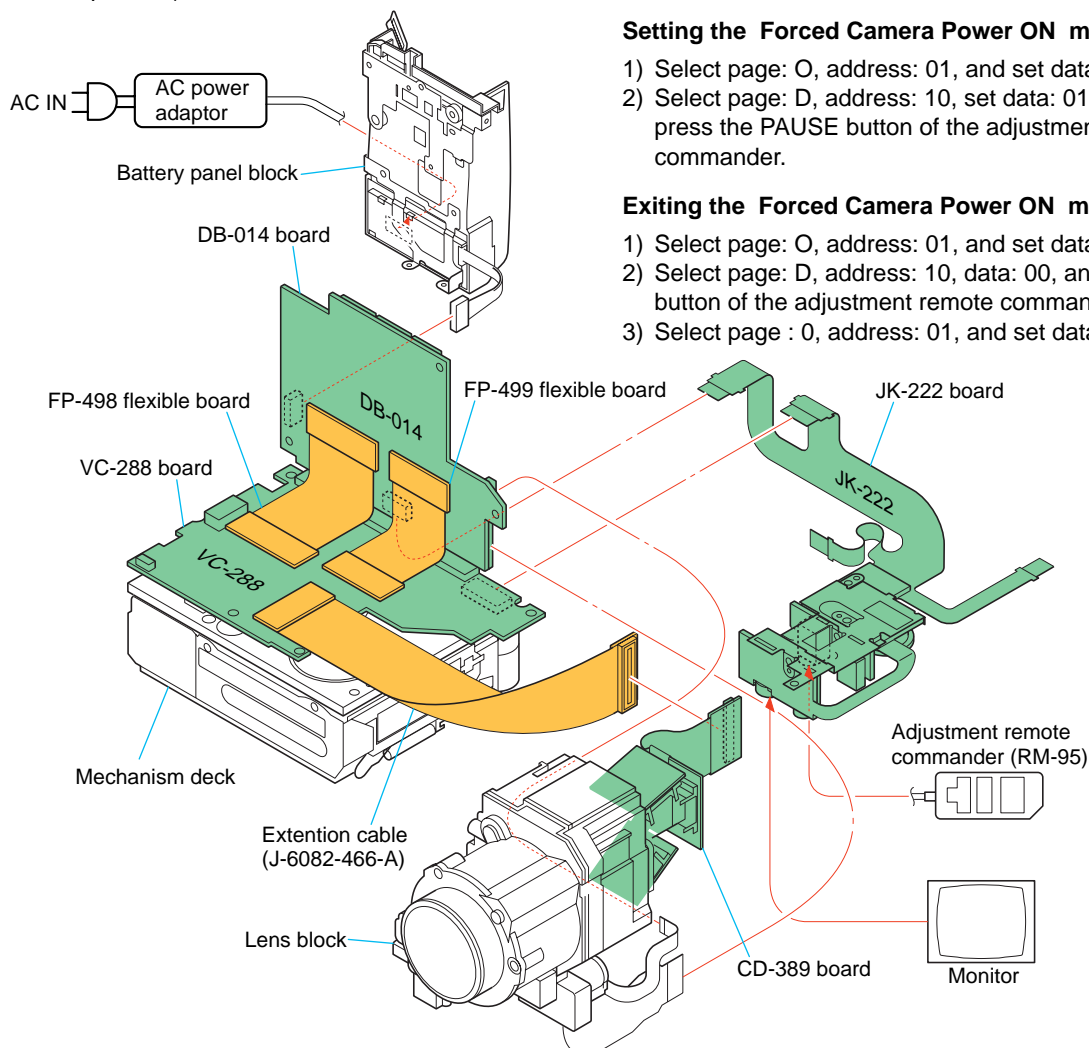
2-19.STROBOSCOPE BLOCK



2-20.JK-222 BOARD**[SERVICE POSITION TO CHECK THE CAMERA SECTION]****Connection to Check the Camera Section**

To check the camera section, set the camera to the Forced camera power ON mode.

Operate the camera functions of the zoom and focus using the adjustment remote commander (with the HOLD switch set in the OFF position).

**Setting the Forced Camera Power ON mode**

- 1) Select page: O, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 01 and press the PAUSE button of the adjustment remote commander.

Exiting the Forced Camera Power ON mode

- 1) Select page: O, address: 01, and set data: 01.
- 2) Select page: D, address: 10, data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page : 0, address: 01, and set data: 00.

[SERVICE POSITION TO CHECK THE VTR SECTION]**Connection to Check the VTR Section**

To check the VTR section, set the VTR to the Forced VTR power ON mode. (Or, connect the control switch block (PS-1870) to the CN7201 of DB-014 board and set the power switch to the VIDEO position.)
Operate the VTR function using the adjustment remote commander (with the HOLD switch set in the OFF position).

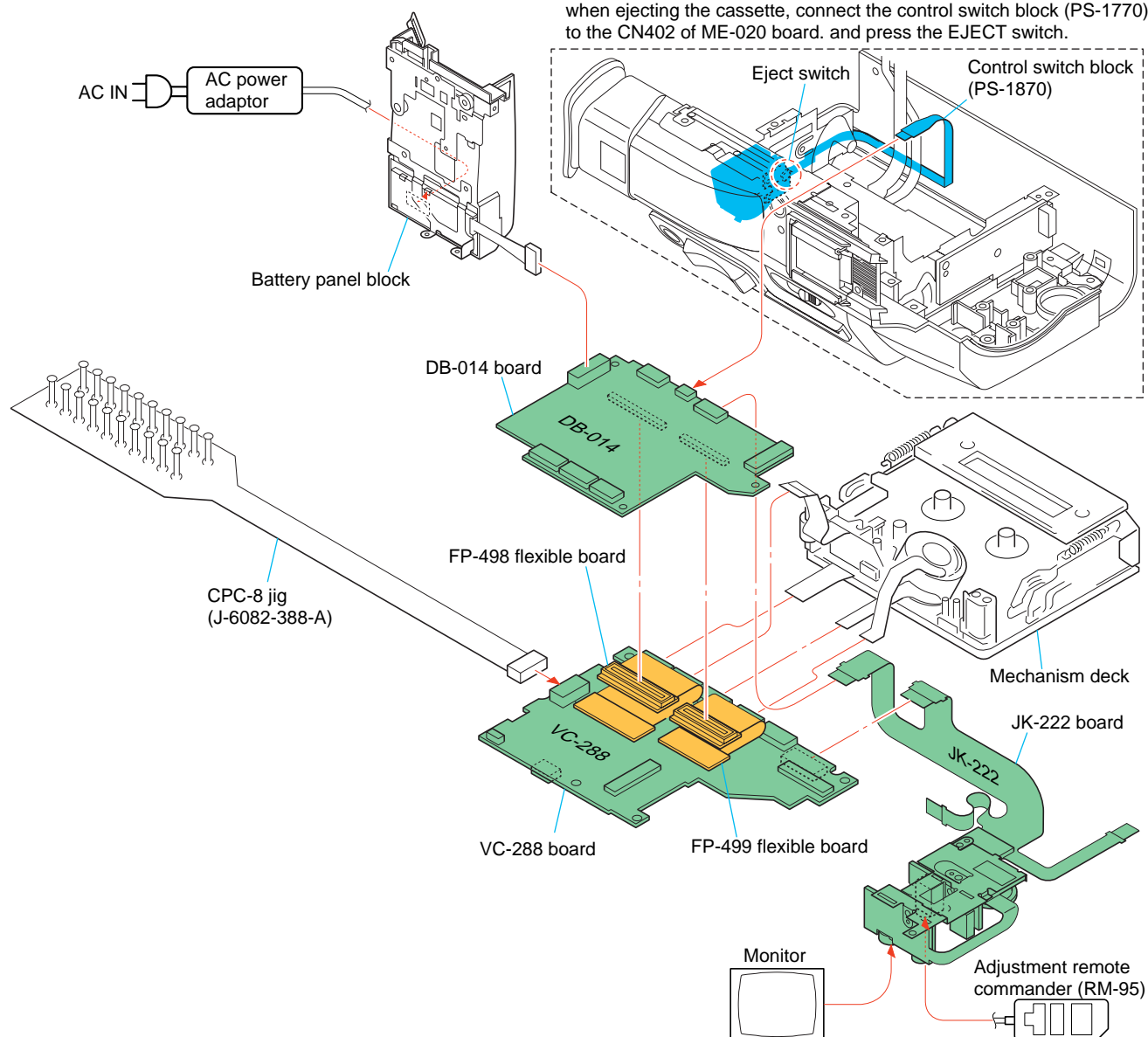
Setting the Forced VTR Power ON mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 02 and press the PAUSE button of the adjustment remote commander.

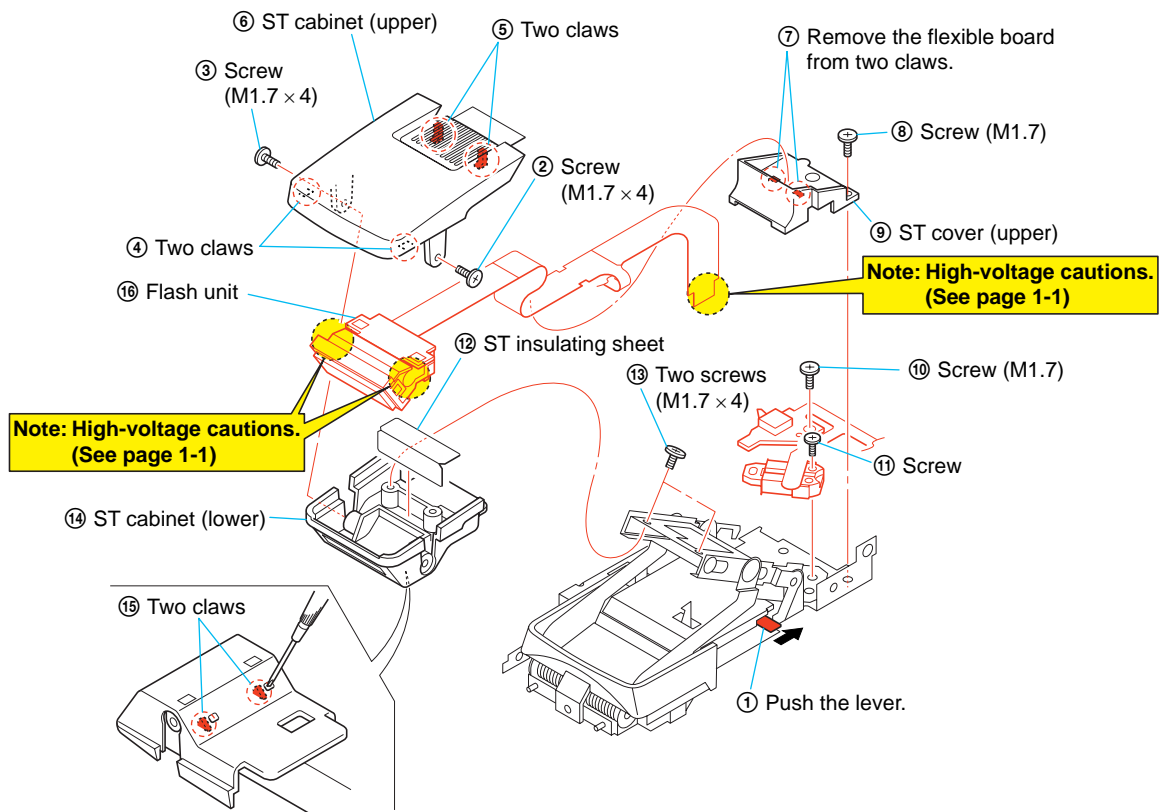
Exiting the Forced VTR Power ON mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

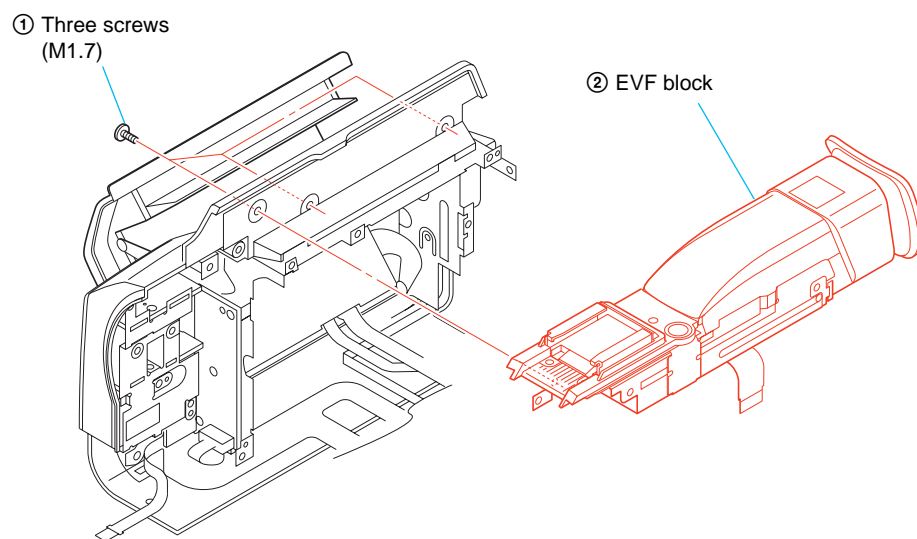
When exiting the Forced VTR Power ON mode, connect the control switch block (PS-1870) to the CN7201 of DB-014 board. Or, when ejecting the cassette, connect the control switch block (PS-1770) to the CN402 of ME-020 board. and press the EJECT switch.



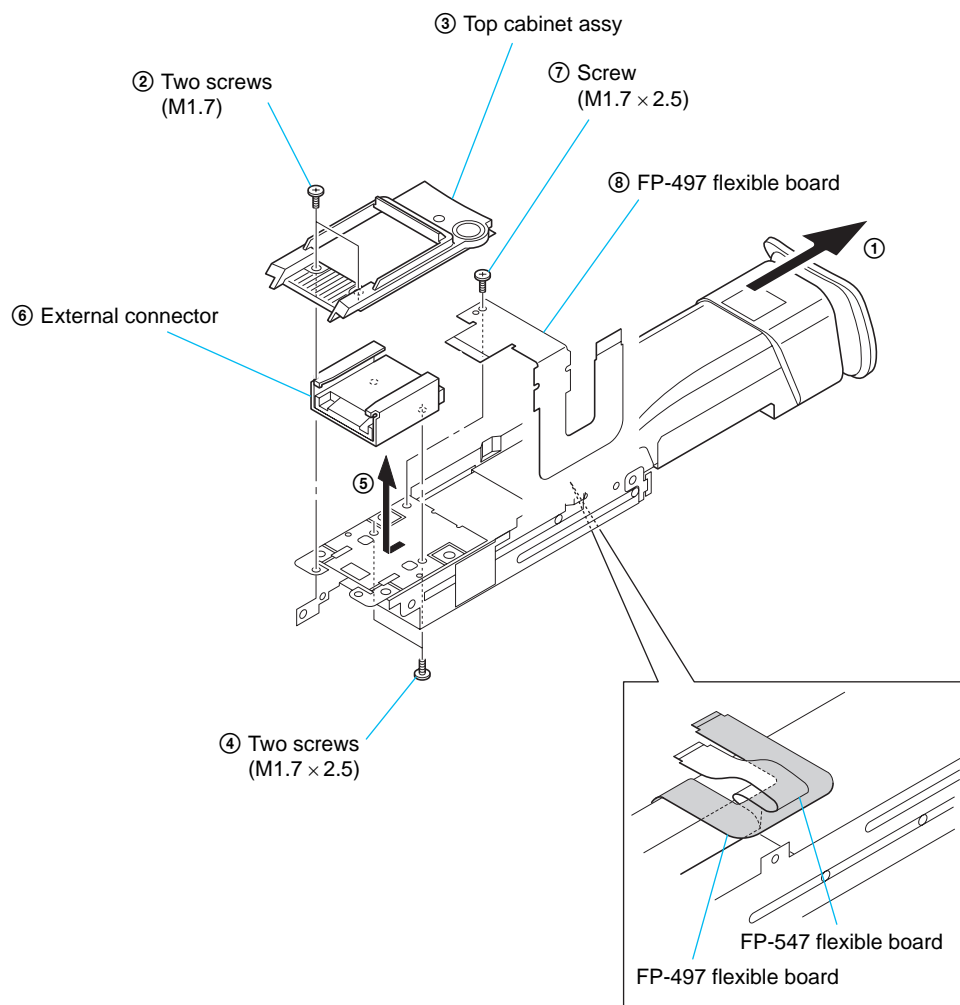
2-21.FLASH UNIT



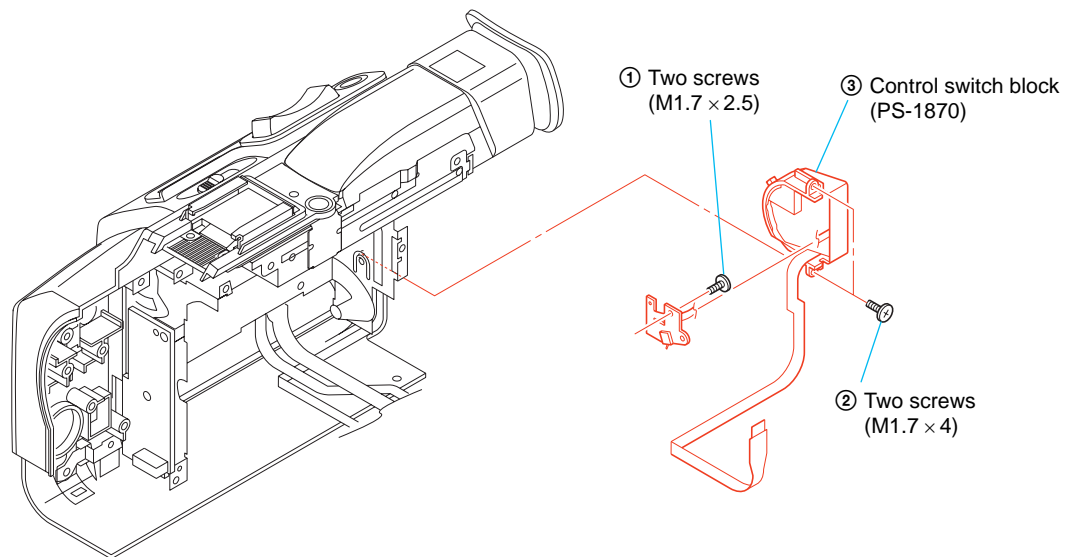
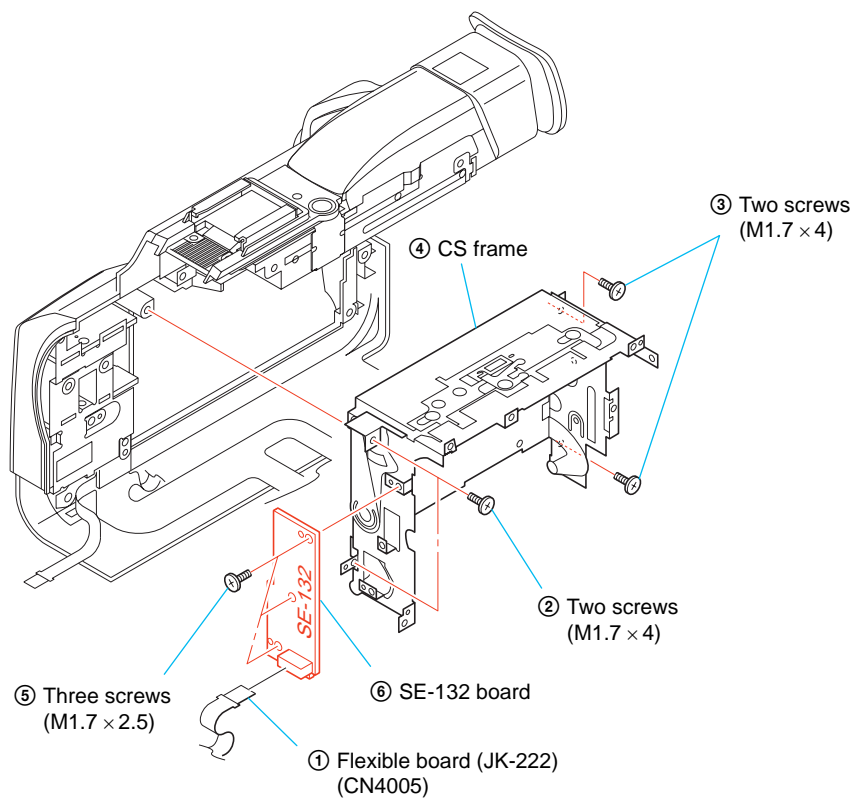
2-22.EVF BLOCK



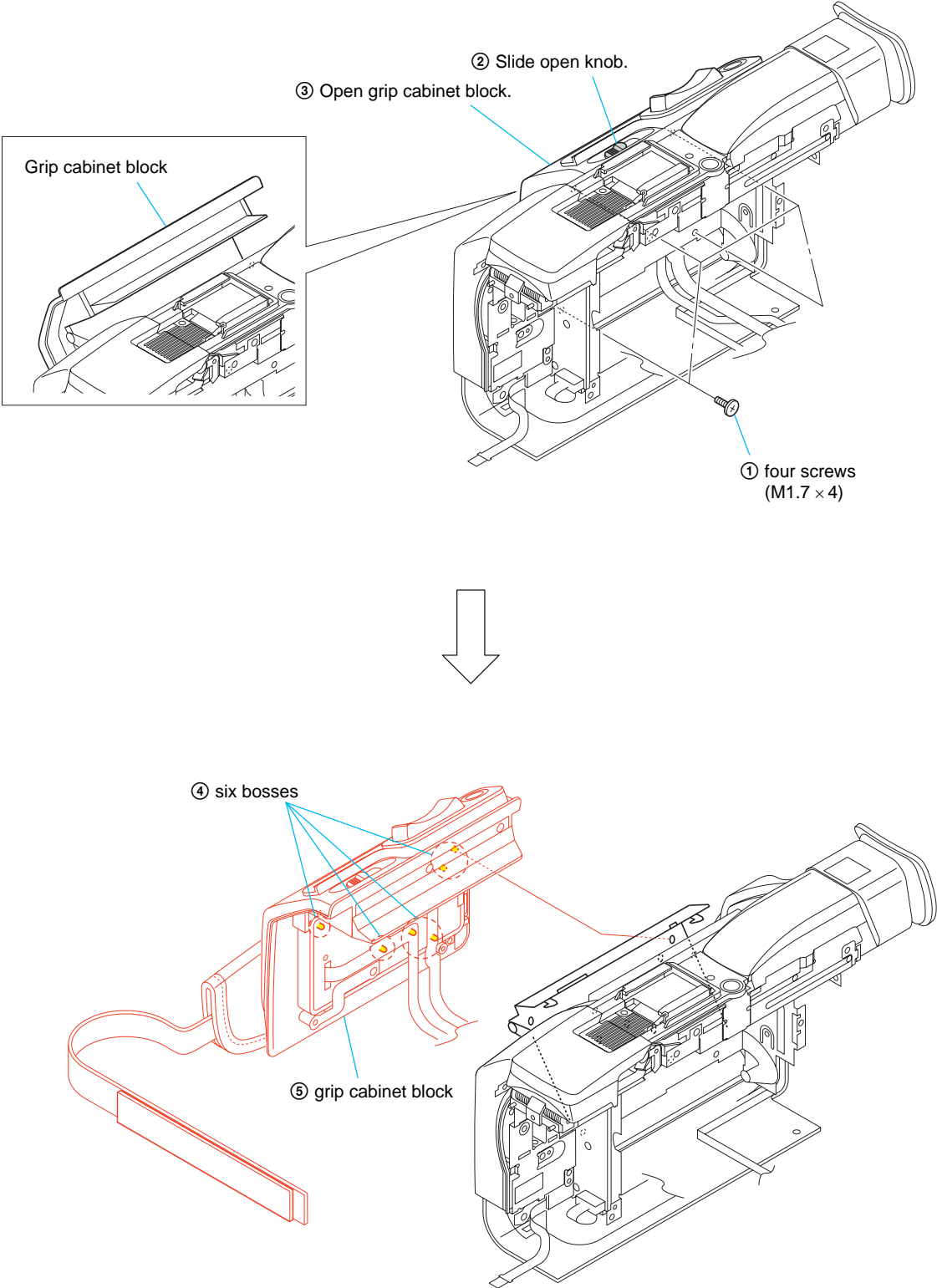
2-23.FP-497 FLEXIBLE BOARD

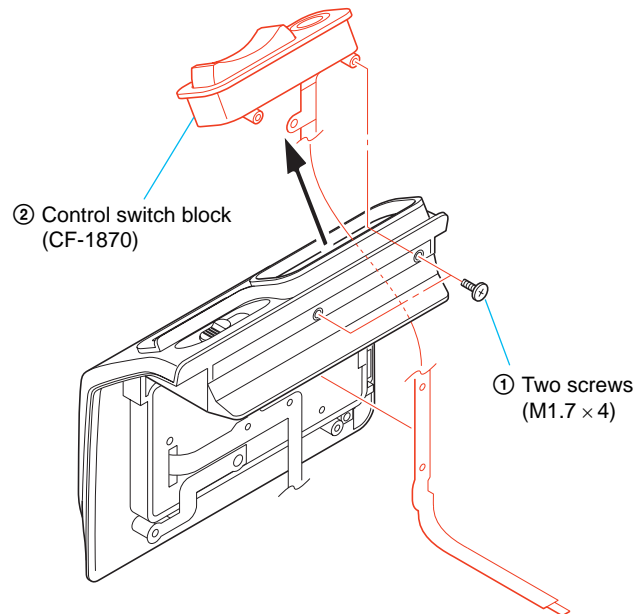
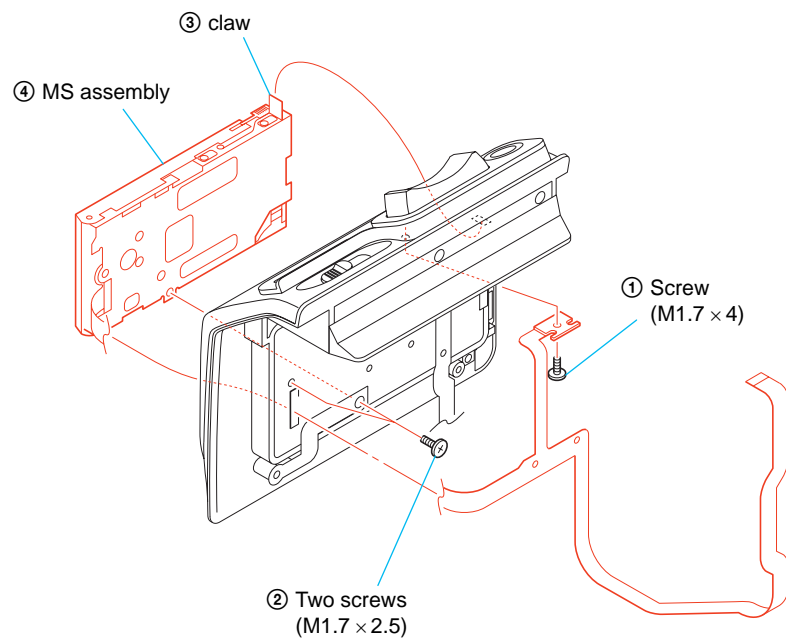


Note: When installing FP-497 flexible board and FP-547 flexible board, please attach, as shown in a figure.

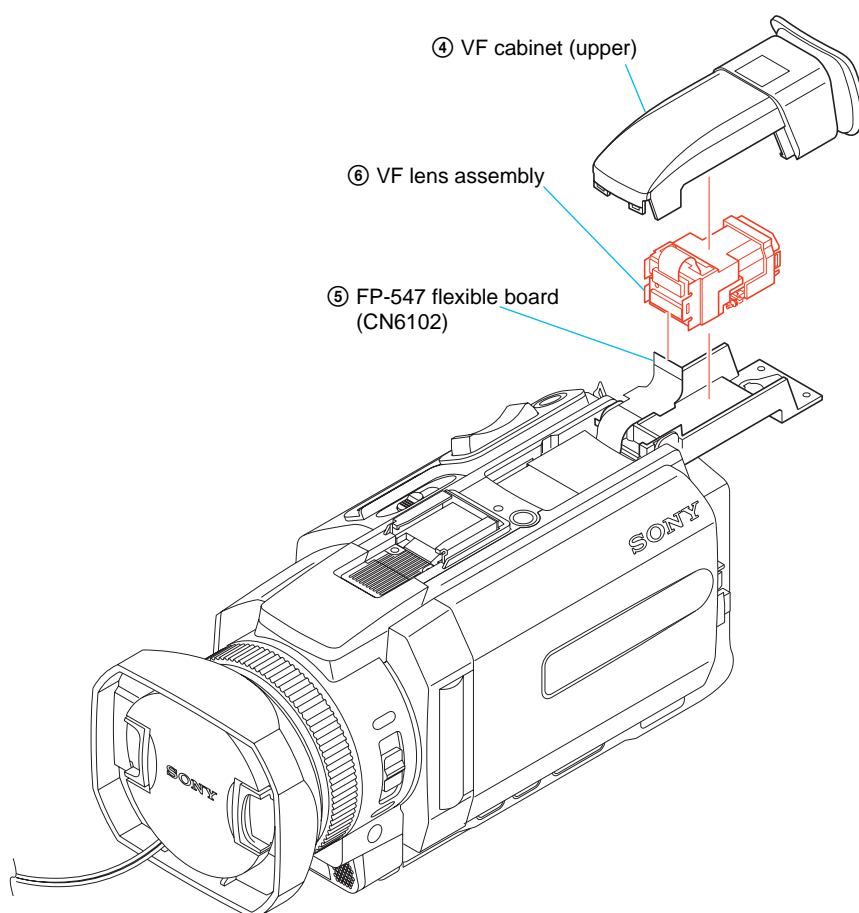
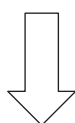
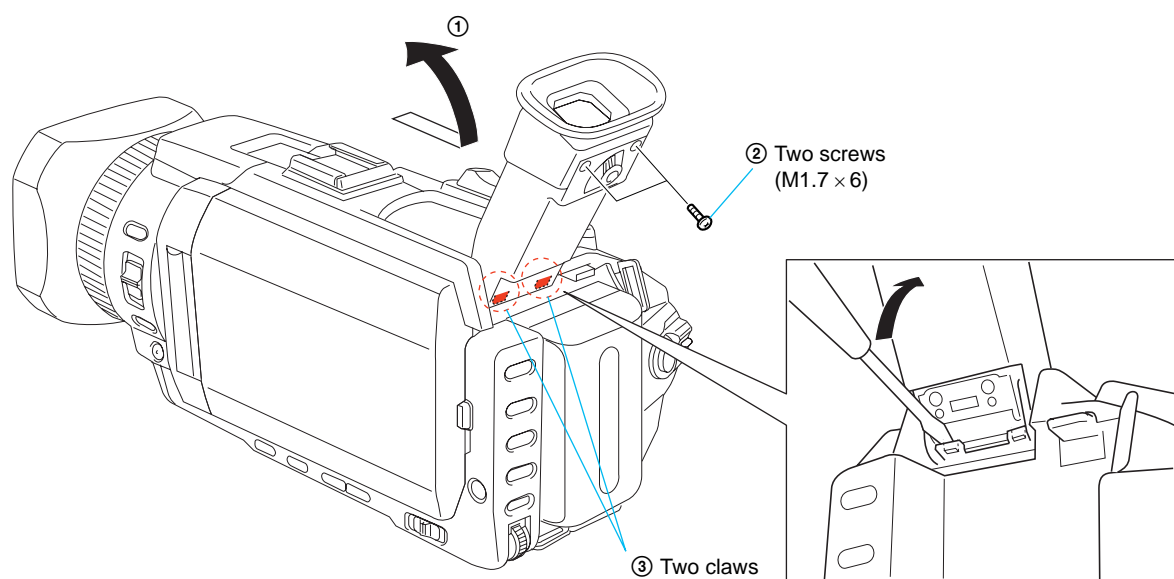
2-24.CONTROL SWITCH BLOCK (PS-1870)**2-25.SE-132 BOARD**

2-26.GRIP CABINET BLOCK



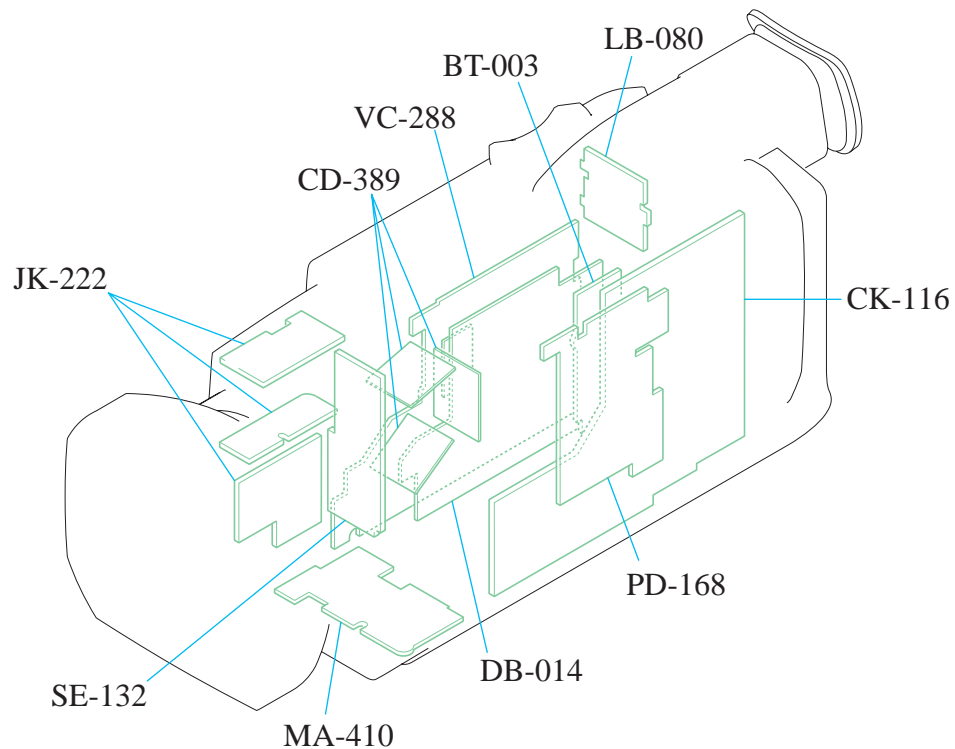
2-27.CONTROL SWITCH BLOCK (CF-1870)**2-28.MS ASSEMBLY**

2-29.VF LENS ASSEMBLY





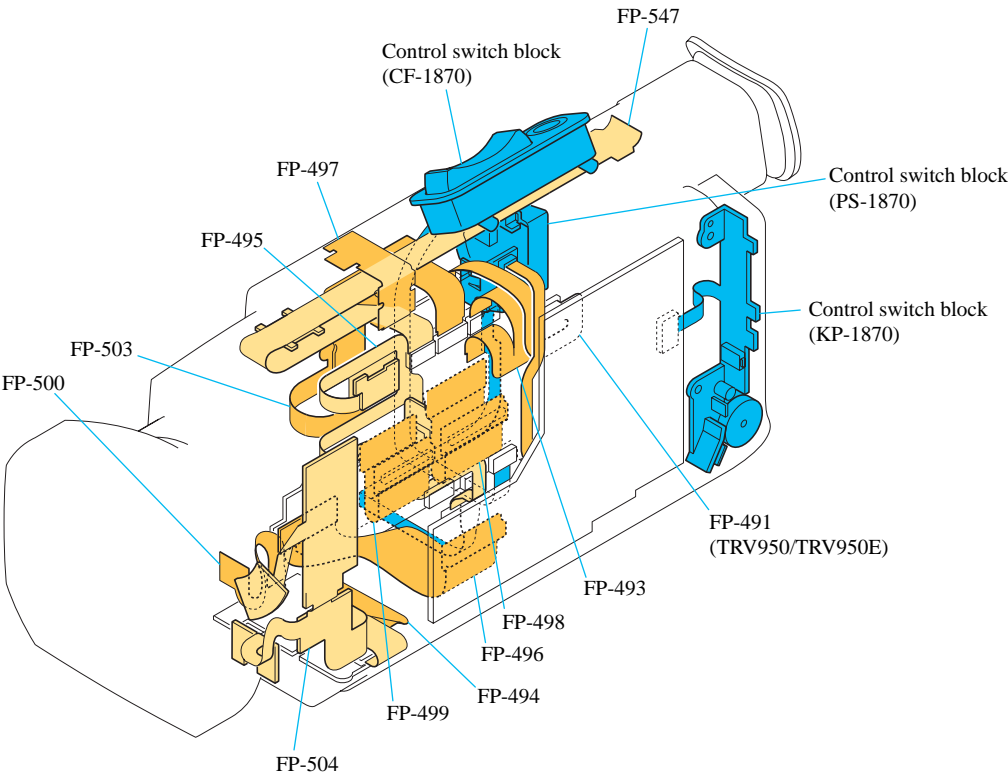
2-30.CIRCUIT BOARDS LOCATION



Board Name	Function
BT-003 (TRV950/TRV950E)	BLUE TOOTH (BT-003 board is only replaced as a mounted board. Therefor, schematic diagrams and printed wiring boards are not shown.)
CD-389	CCD IMAGER
CK-116	CONTROL SWITCH
DB-014	LENS MOTOR DRIVE, VAP DRIVER, MIC VOL, AUDIO PROCESS, VIDEO IN/OUT, EVF DRIVE, TIMING GENERATOR, CONNECTOR, DC/DC CONTROL
JK-222	AV IN/OUT, DV/USB CONNECTOR
LB-080	EVF, EVF BACK LIGHT
MA-410	MIC AMP, AF LASER CONTROL
PD-168	LCD DRIVER TIMING GENERATOR, BACK LIGHT
SE-132	PITCH/YAW SENSOR
VC-288	A/D CONVERTER, TIMING GENERATOR, CAMERA RGB PROCESS, CAMERA PROCESS, MPEG MOVIE/DIGITAL STILL PROCESS, HI CONTROL, DIGITAL STILL CONTROL, FLASH MEMORY, SDRAM, DV SIGNAL PROCESS, DV INTERFACE, REC/PB AMP, USB INTERFACE, VIDEO A/D CONVERTER, DRUM/CAPSTAN/LOADING DRIVE, CAMERA/MECHA CONTROL, HI CONTROL, LANC, RESET, BEEP, AFLD, CONNECTOR, EVR



2-31.FLEXIBLE BOARDS LOCATION





3. BLOCK DIAGRAMS

Link

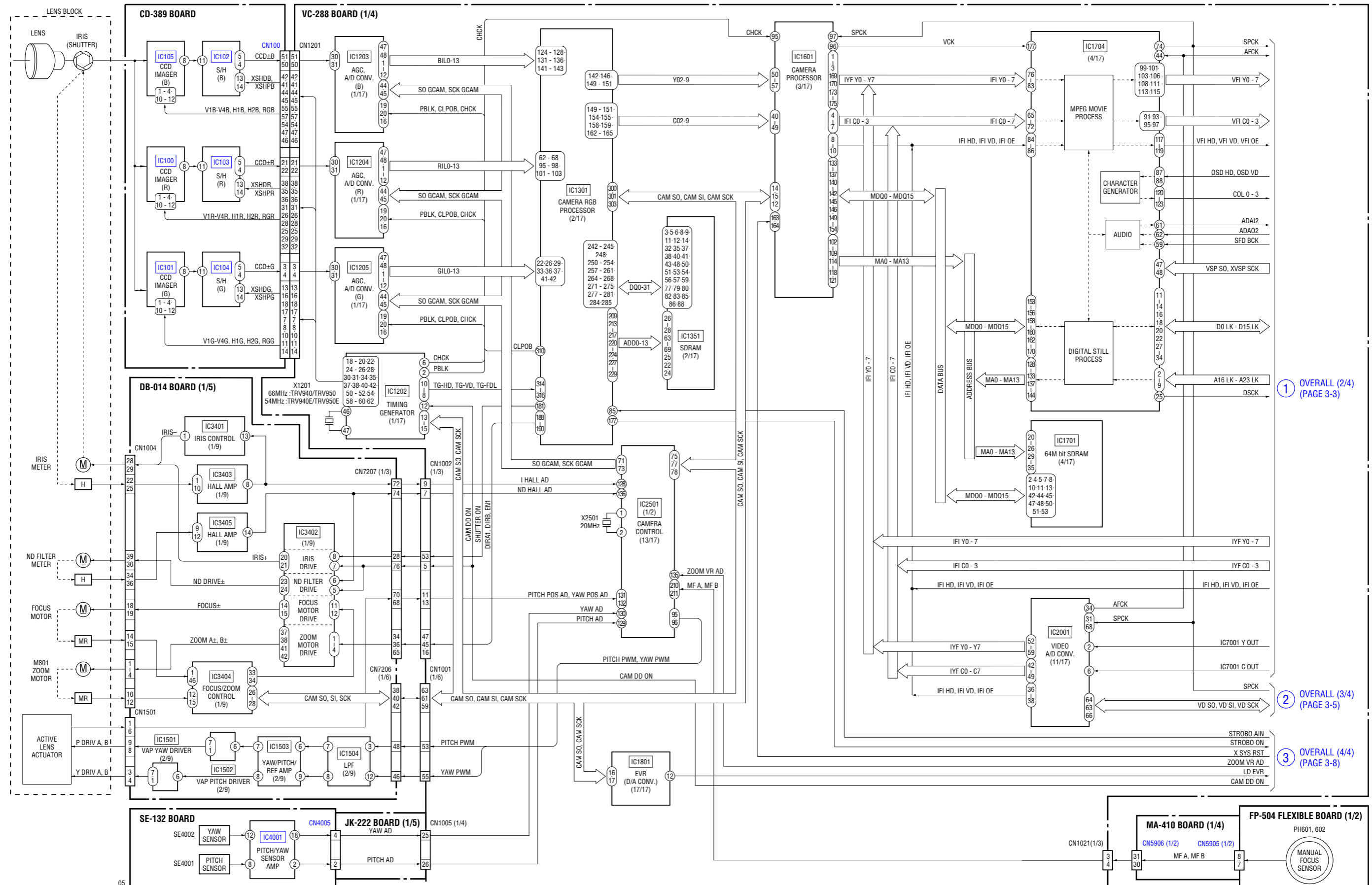
OVERALL BLOCK DIAGRAM (1/4)	POWER BLOCK DIAGRAM (1/3)
OVERALL BLOCK DIAGRAM (2/4)	POWER BLOCK DIAGRAM (2/3)
OVERALL BLOCK DIAGRAM (3/4)	POWER BLOCK DIAGRAM (3/3)
OVERALL BLOCK DIAGRAM (4/4)	



SECTION 3 BLOCK DIAGRAMS

3. BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/4) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



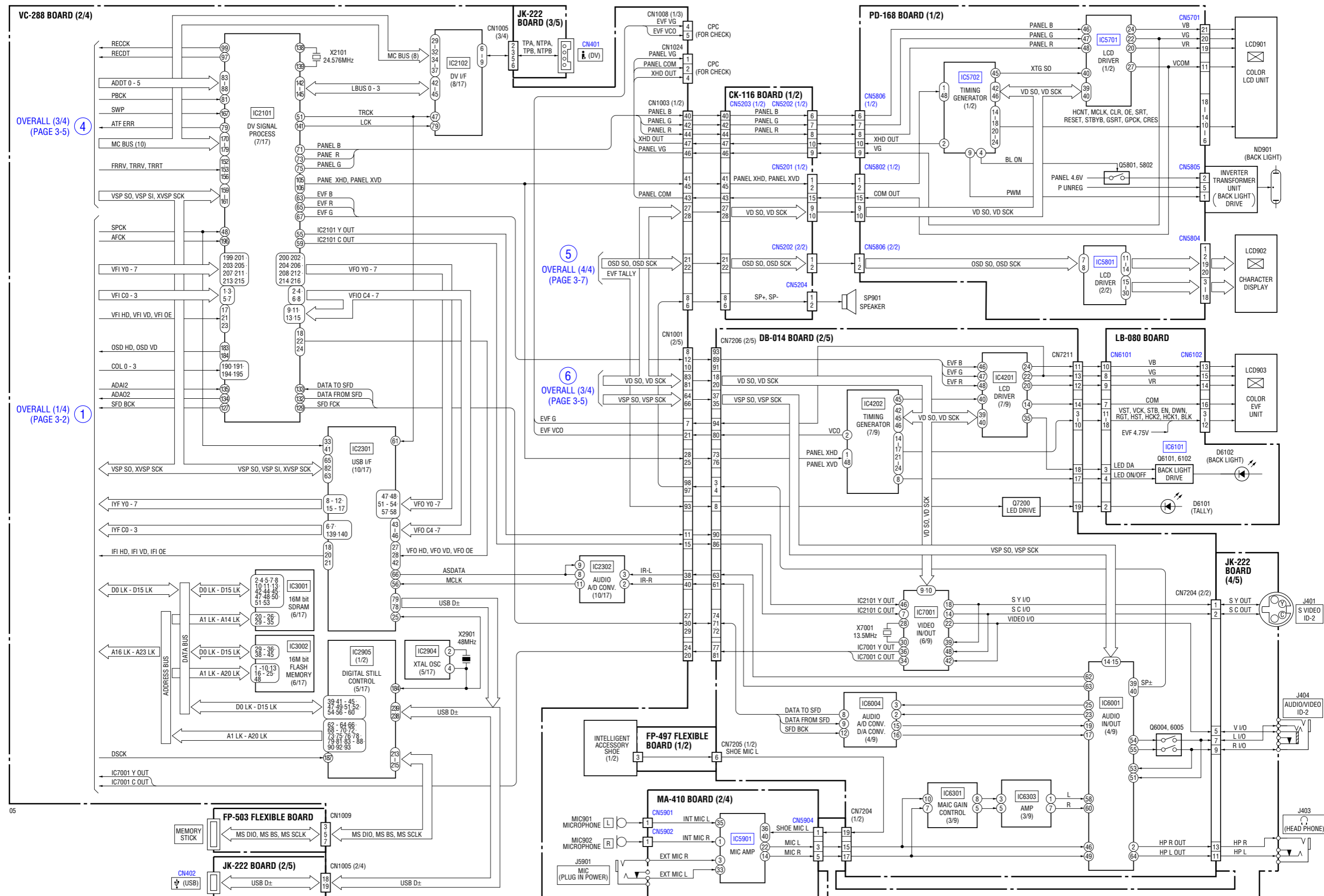
① OVERALL (2/4)
(PAGE 3-3)

② OVERALL (3/4)
(PAGE 3-5)

③ OVERALL (4/4)
(PAGE 3-8)

3. BLOCK DIAGRAMS

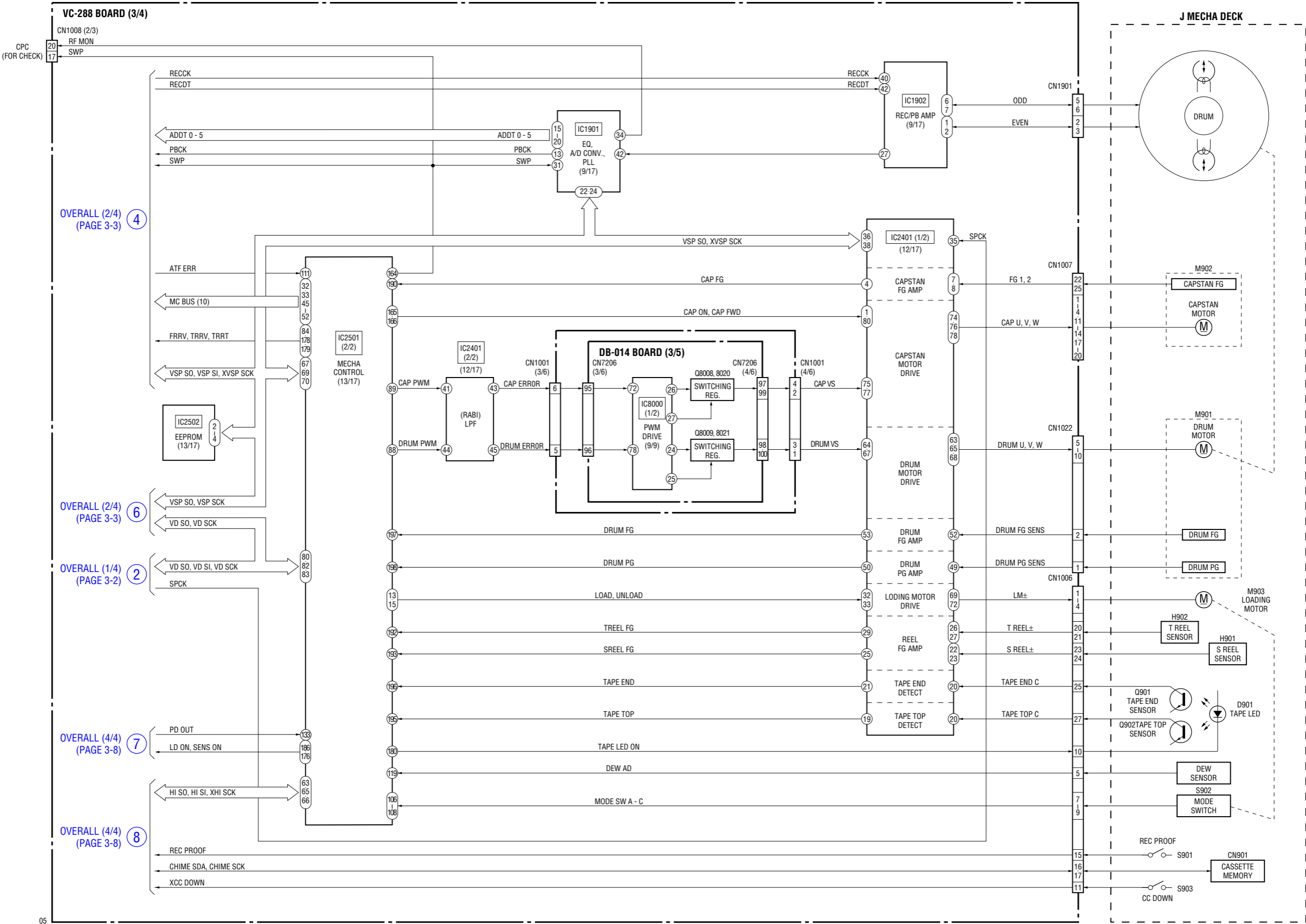
3-2. OVERALL BLOCK DIAGRAM (2/4) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.





3. BLOCK DIAGRAMS

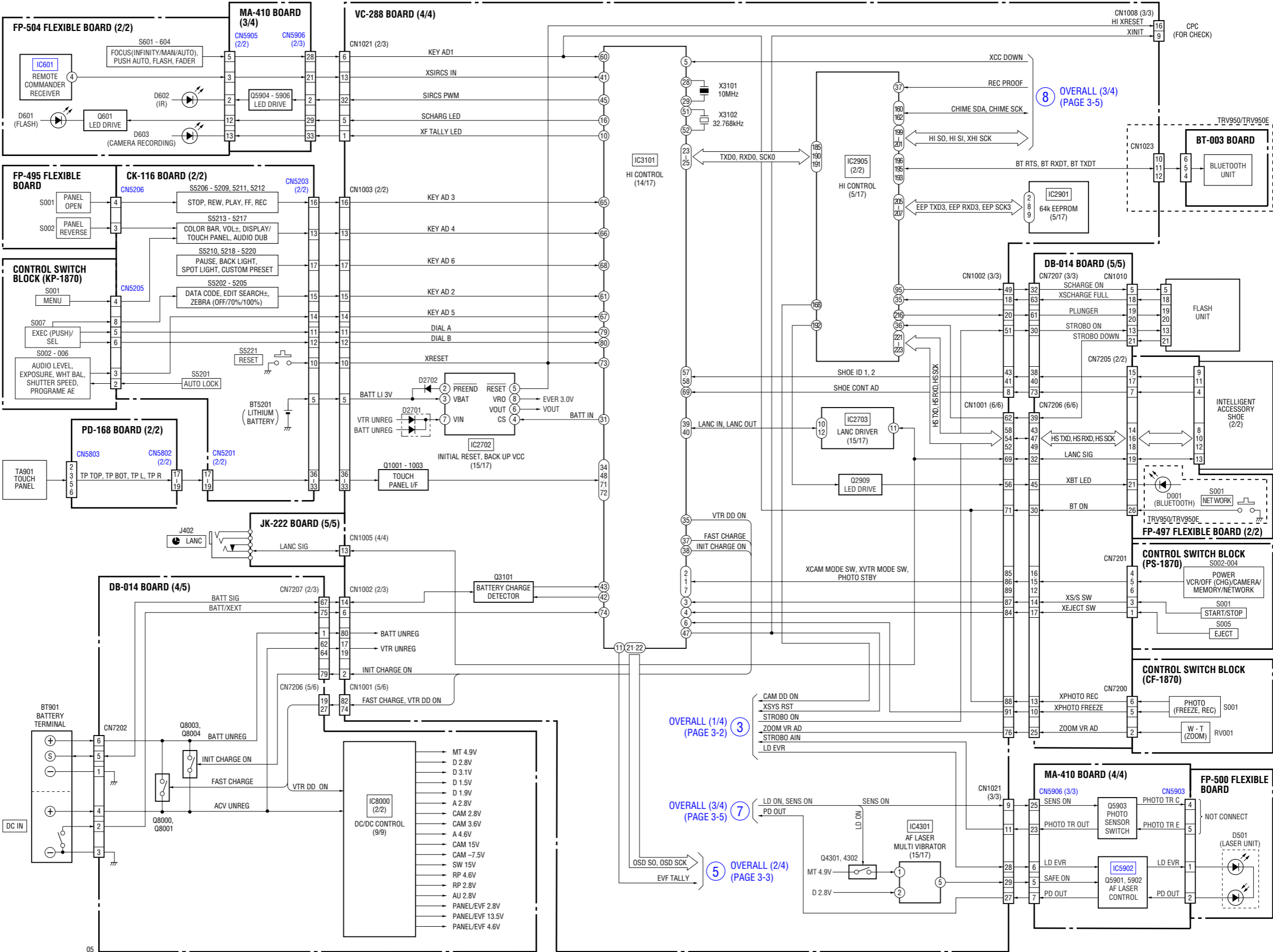
3-3. OVERALL BLOCK DIAGRAM (3/4) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.





3. BLOCK DIAGRAMS

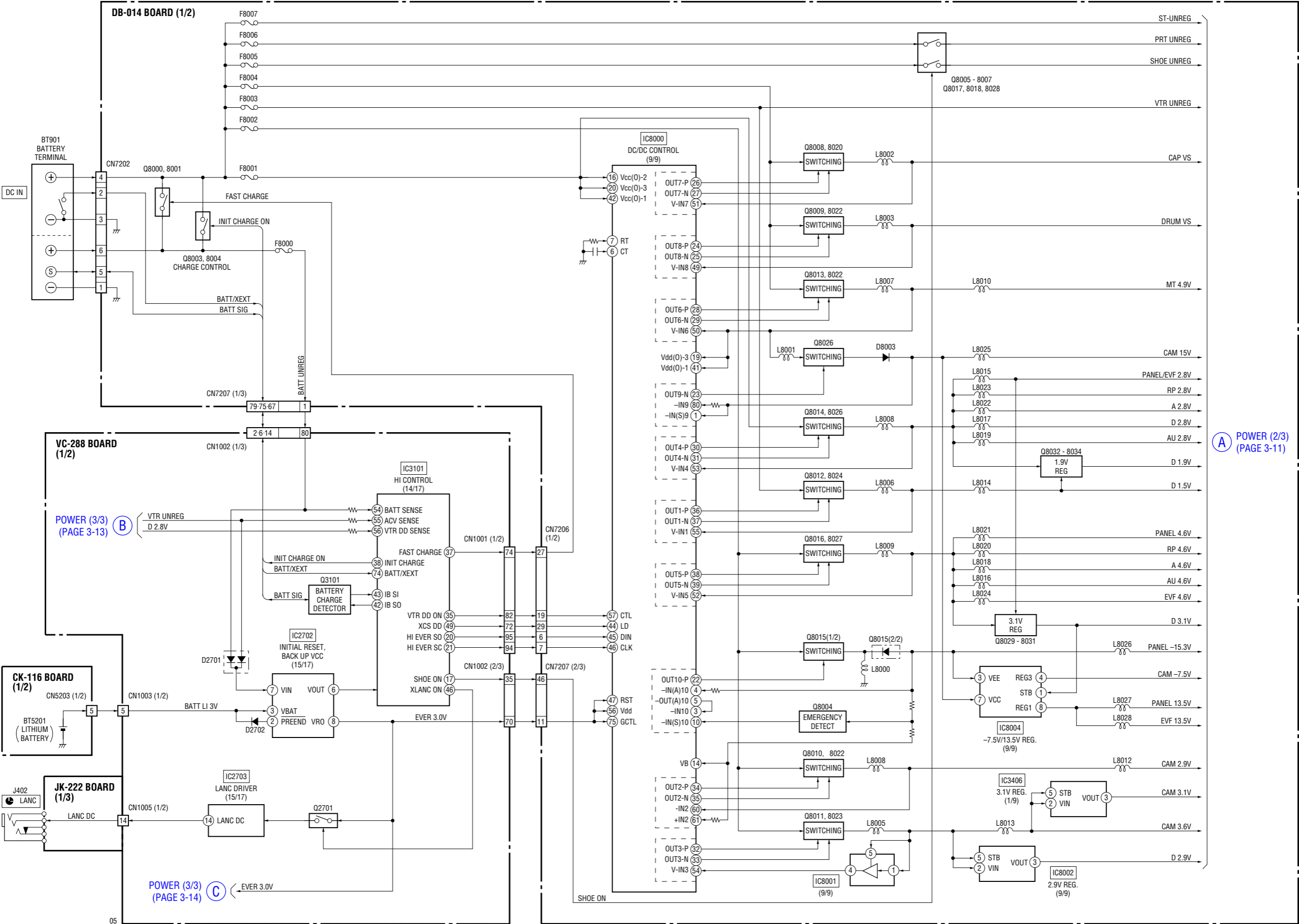
3-4. OVERALL BLOCK DIAGRAM (4/4) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.





3. BLOCK DIAGRAMS

3-5. POWER BLOCK DIAGRAM (1/3) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



A POWER (2/3)
(PAGE 3-11)

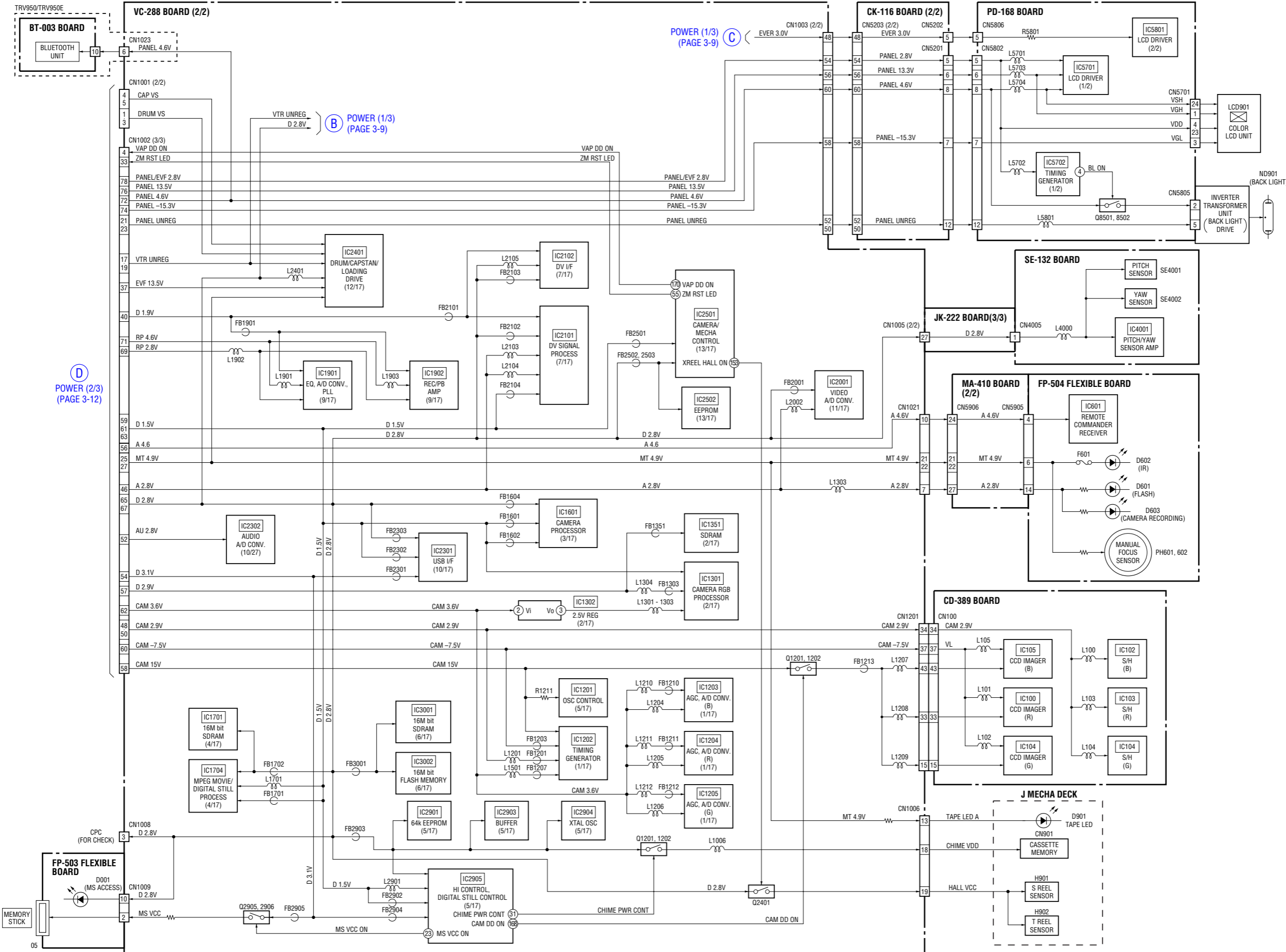
3. BLOCK DIAGRAMS

[illegible]



3. BLOCK DIAGRAMS

3-7. POWER BLOCK DIAGRAM (3/3) () : Number in parenthesis () indicates the division number of schematic diagram where the component is located.



4-3. PRINTED WIRING BOARDS

FRAME SCHEMATIC DIAGRAM (1/3)

TRV950/TRV950E (Note) Note: Although parts are mounted on the board, they are not used in TRV940/TRV940E.

S001 NETWORK
D001 (BLUETOOTH)

FP-497 FLEXIBLE

CONTROL SWITCH BLOCK (PS-1870)

CONTROL SWITCH BLOCK (CF-1870)

INTelligent ACCESSORY SHOE

LCD903 COLOR EVF UNIT

LB-080 BOARD

FP-547 FLEXIBLE

DB-014 BOARD (1/2)

CD-389 BOARD

LENS BLOCK

FP-493 FLEXIBLE

FLASH UNIT

BT901 BATTERY TERMINAL DC IN

VC-288 BOARD (1/3)

05

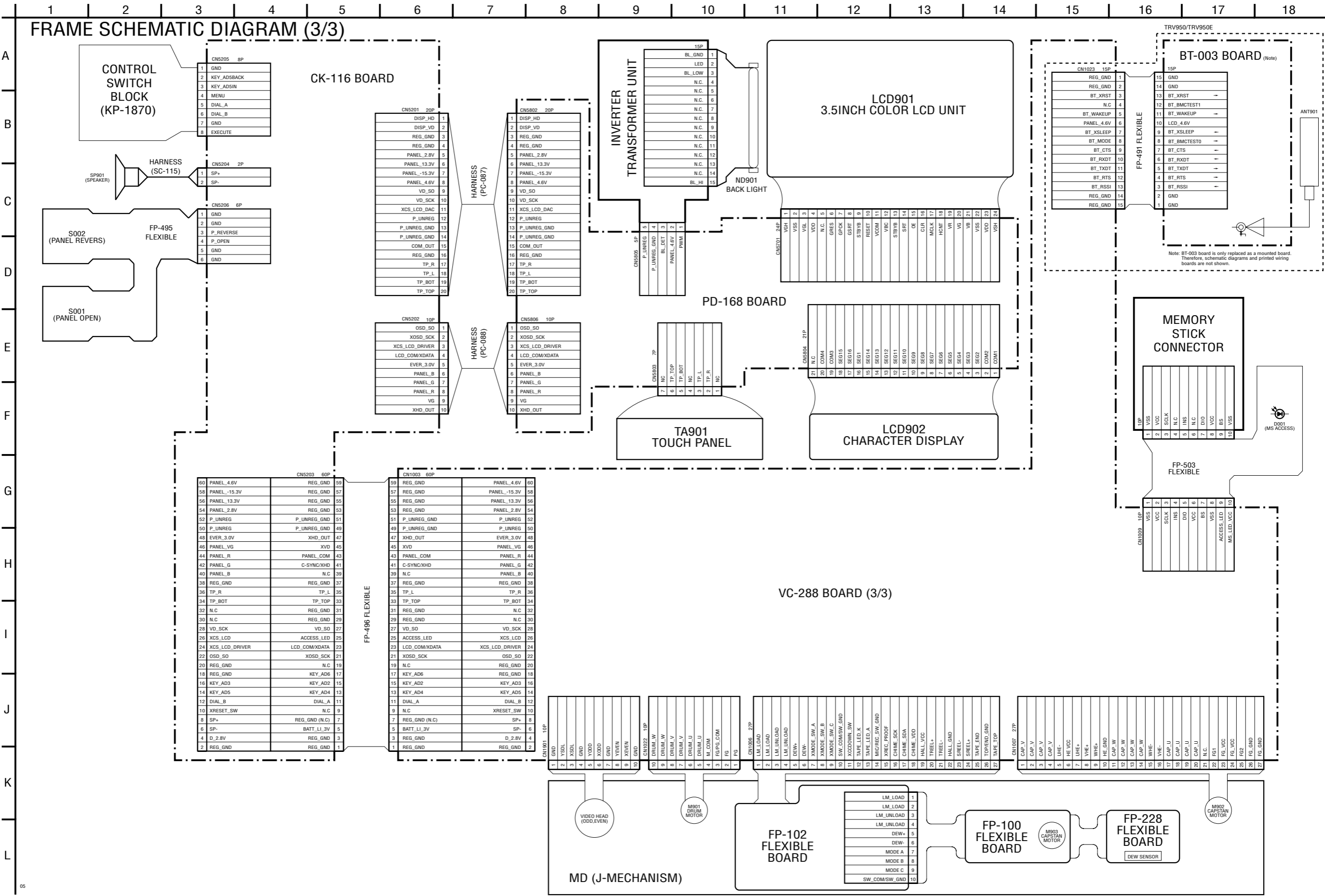
4-3. PRINTED WIRING BOARDS





4-2. SCHEMATIC DIAGRAMS

4-3. PRINTED WIRING BOARDS





4-2. SCHEMATIC DIAGRAMS

4-2. SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR SCHEMATIC DIAGRAMS

(In addition to this, the necessary note is printed in each block)

(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. pF : μF . 50 V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10 W unless otherwise noted. $\text{k}\Omega=1000 \Omega$, $\text{M}\Omega=1000 \text{k}\Omega$.
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example	C541	L452
	22U	10UH
	TA A	2520
Kinds of capacitor		
Temperature characteristics		
External dimensions (mm)		

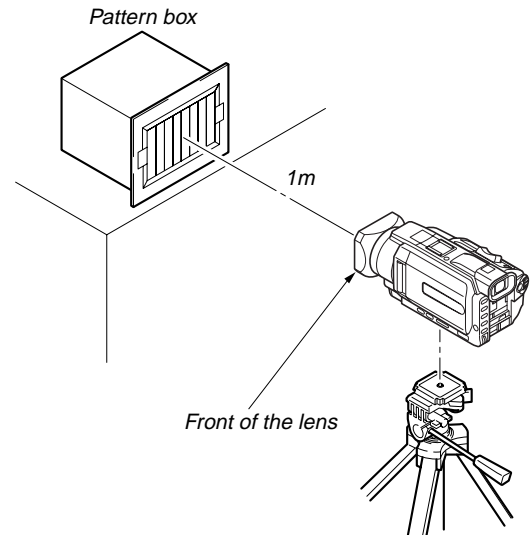
- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination. Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
XEDIT → EDIT PB/XREC → PB/REC
- : non flammable resistor
- : fusible resistor
- : panel designation
- : B+ Line
- : B- Line
- : IN/OUT direction of (+,-) B LINE.
- : adjustment for repair.
- : VIDEO SIGNAL (ANALOG)
- : AUDIO SIGNAL (ANALOG)
- : VIDEO/AUDIO SIGNAL
- : VIDEO/AUDIO/SERVO SIGNAL
- : SERVO SIGNAL
- Circled numbers refer to waveforms.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms.
(VOM of DC 10 M Ω input impedance is used)
- Voltage values change depending upon input impedance of VOM used.)

Note : The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

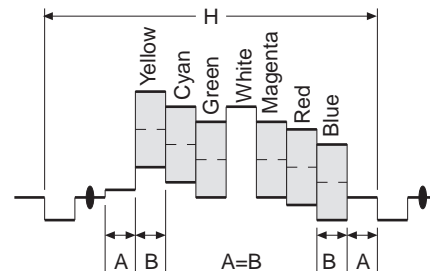


Fig. a (Video output terminal output waveform)

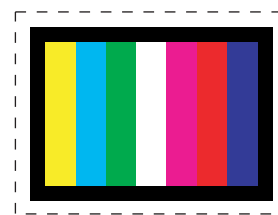


Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.

Note : Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



4-2. SCHEMATIC DIAGRAMS

Link

• CD-389 BOARD (CCD IMAGER)	• PD-168 BOARD (2/2) (LCD DRIVER, BACKLIGHT)
• SE-132 BOARD (PITCH/YAW SENSOR)	• LB-080 BOARD (EVF, EVF BACKLIGHT)
• MA-410 BOARD (MIC AMP, AF LASER CONTROL)	• FP-504 FLEXIBLE BOARD
• CK-116 BOARD (CONTROL SWITCH)	• FP-495, FP-497, FP-500, FP-503 FLEXIBLE BOARD
• JK-222 BOARD (AV IN/OUT, DV/USB CONNECTOR)	• FP-100, FP-102, FP-228 FLEXIBLE BOARD
• PD-168 BOARD (1/2) (LCD DRIVER, TIMING GENERATOR)	• CONTROL SWITCH BLOCK (CF-1870, KP-1870, PS-1870)
• COMMON NOTE FOR SCHEMATIC DIAGRAMS	• WAVEFORMS



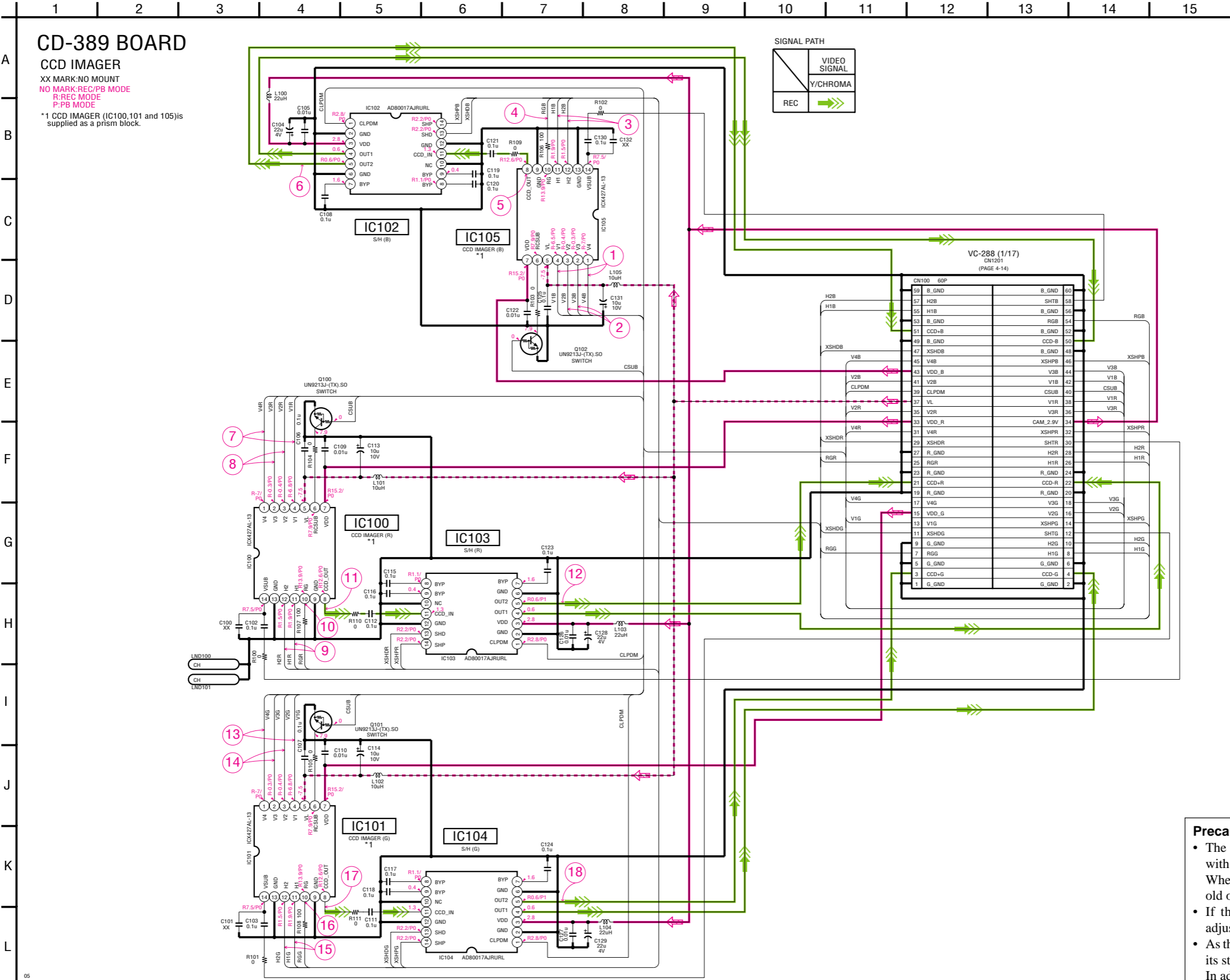
4-2. SCHEMATIC DIAGRAMS

CD-389 BOARD SIDE A

CD-389 BOARD SIDE B

For Schematic Diagram

- Refer to page 4-89 for printed wiring board.
- Refer to page 4-125 for waveforms.



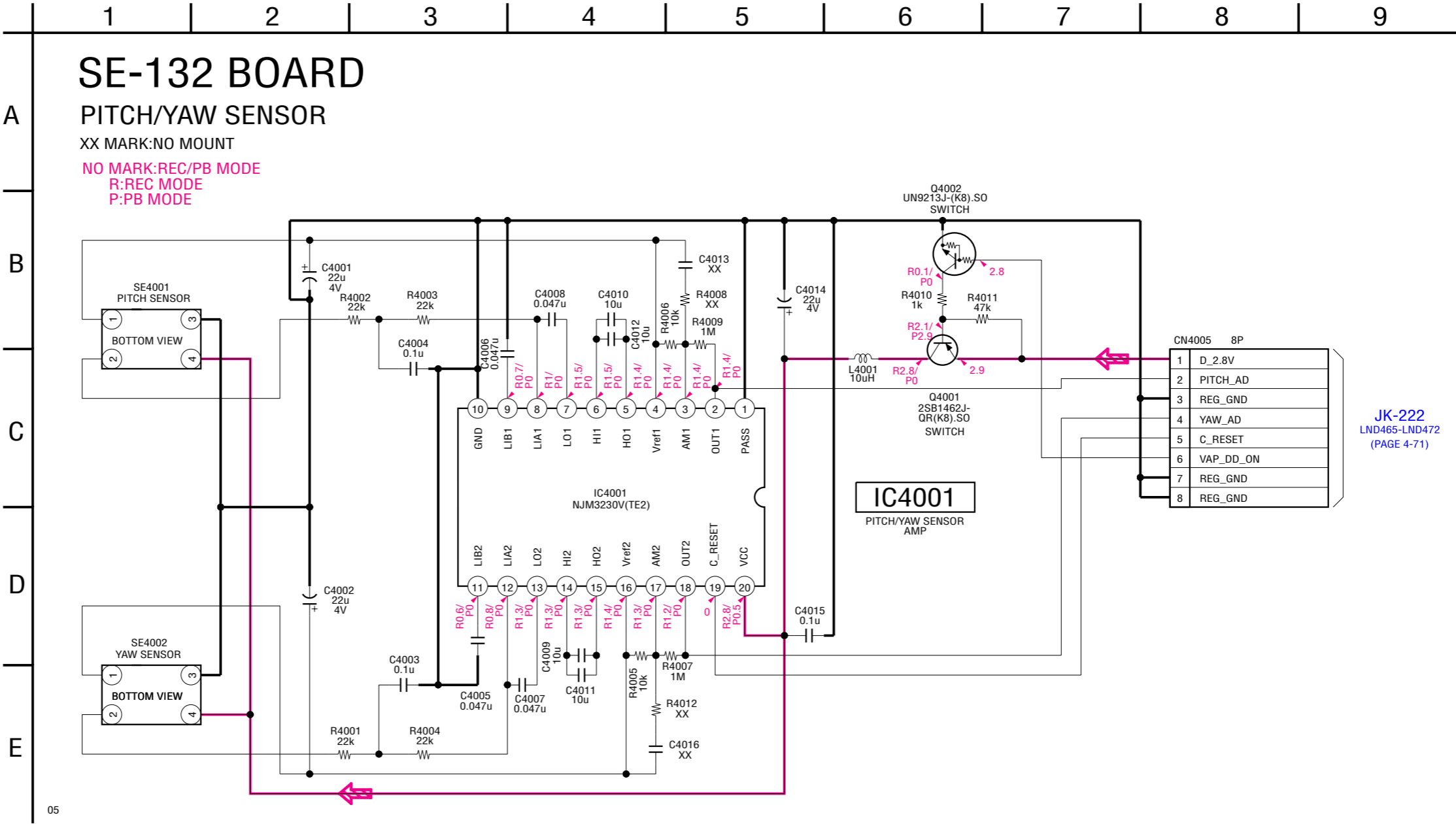
Precautions for Replacement of CCD Imager

- The CD-389 board mounted as a repair part is not equipped with a CCD imager.
When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

Schematic diagrams of the VC-288, DB-014 boards are not shown.
Pages from 4-13 to 4-64 are not shown.



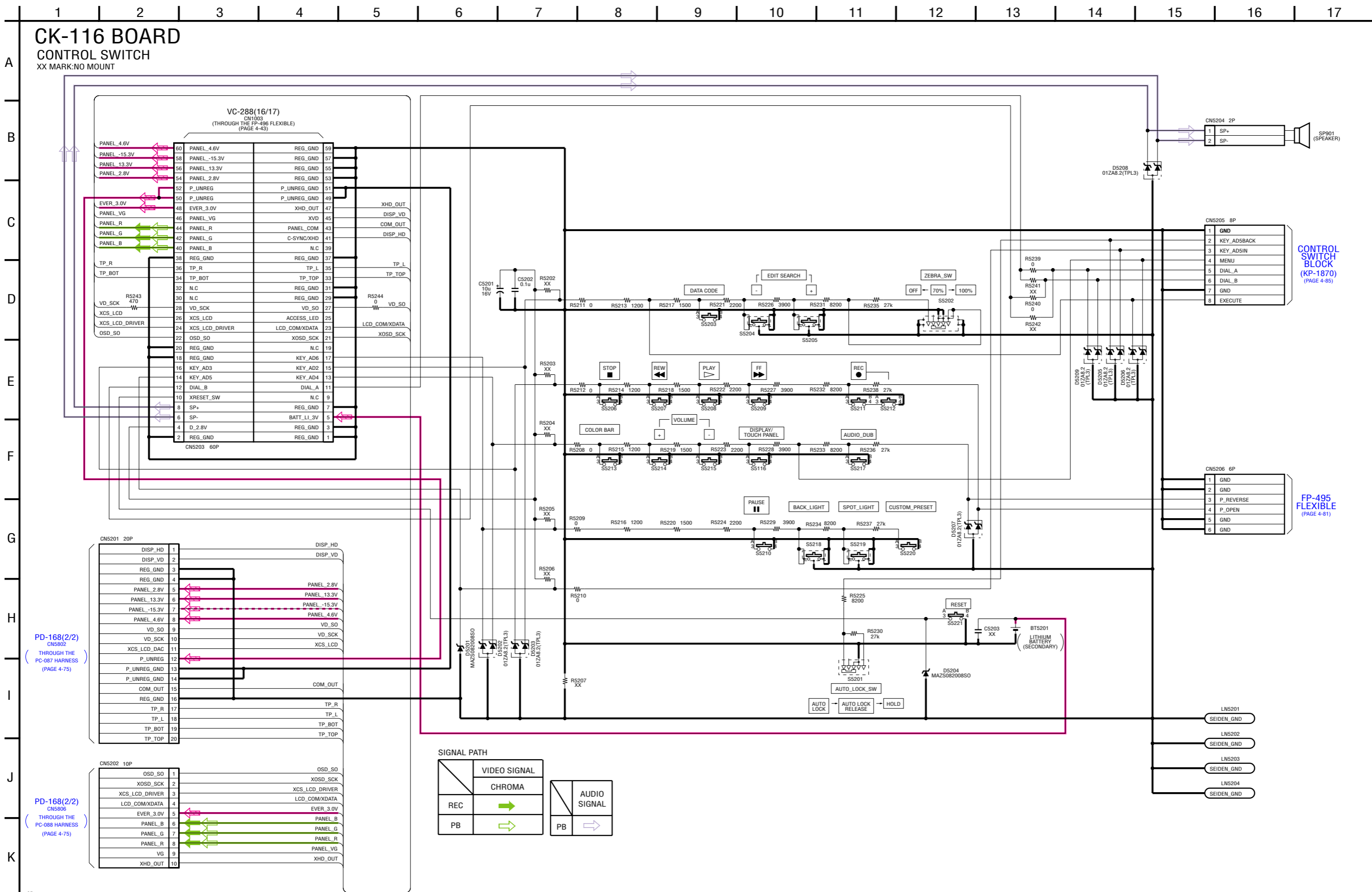
For Schematic Diagram
• Refer to page 4-101 for printed wiring board.



- Refer to page 4-105 for printed wiring board.

CONTROL SWITCH
XX MARK:NO MOUNT

XX MARK:NO MOUNT



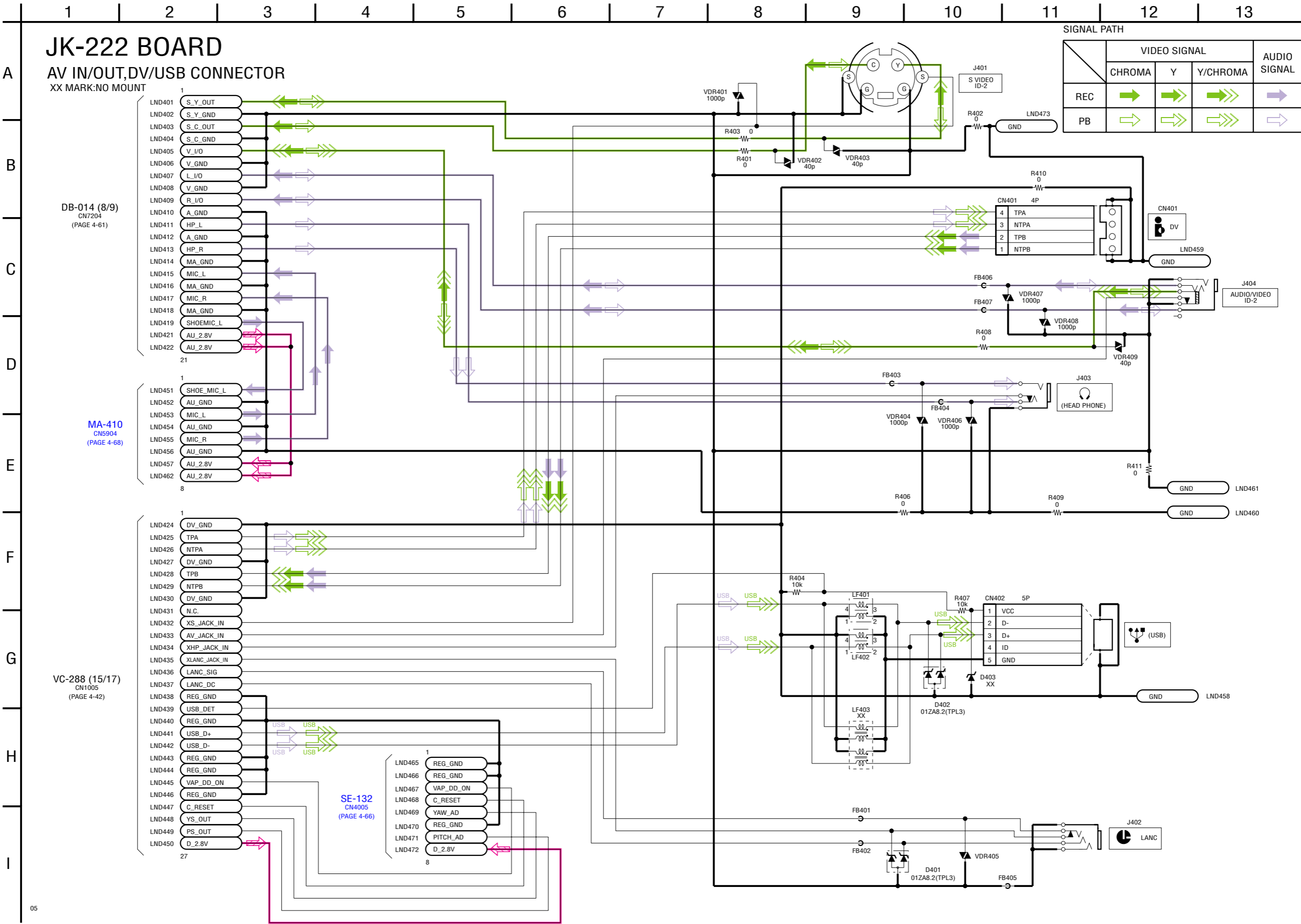


4-2. SCHEMATIC DIAGRAMS

JK-222 BOARD SIDE A

JK-222 BOARD SIDE B

For Schematic Diagram
• Refer to page 4-109 for printed wiring board.



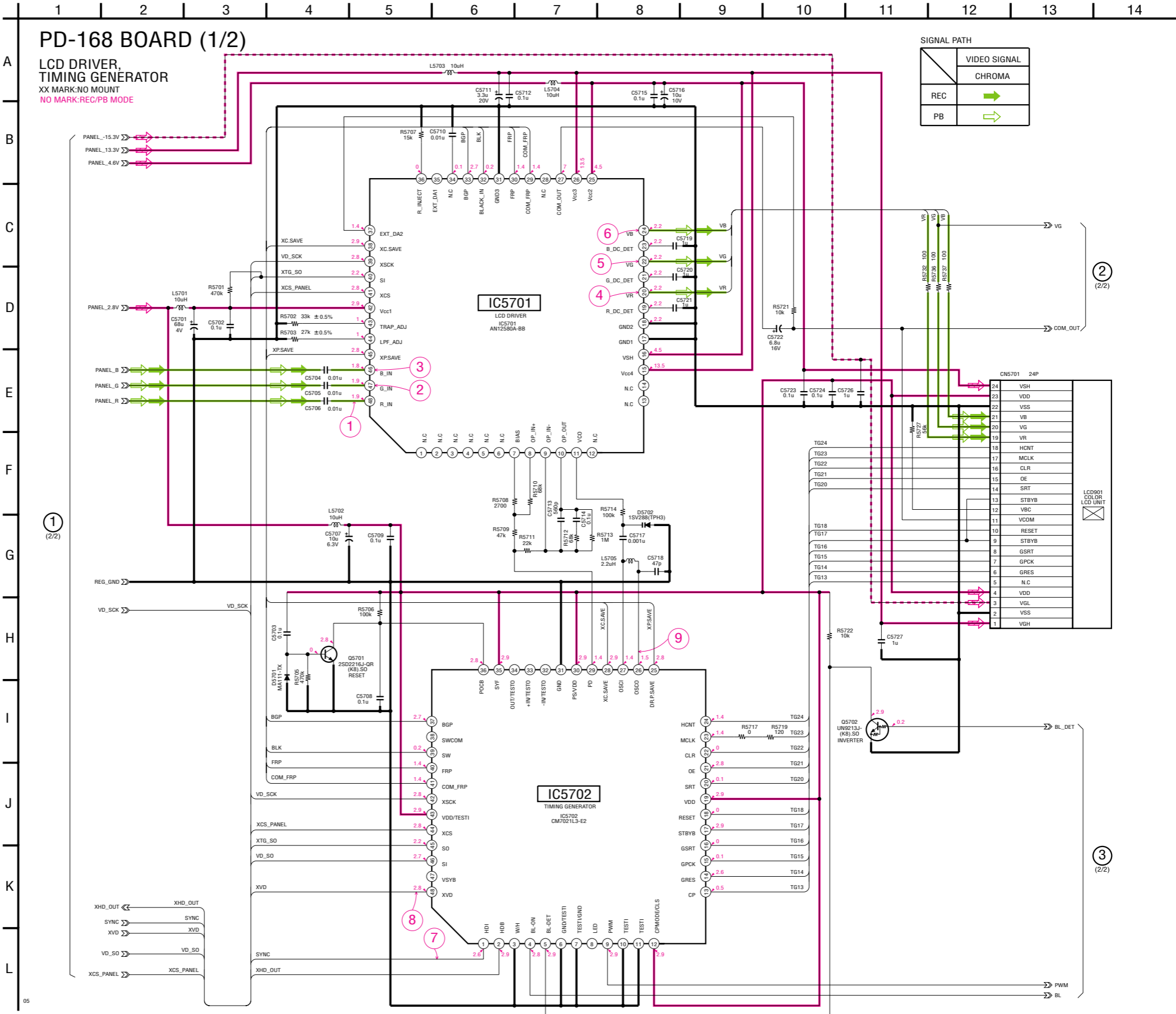


4-2. SCHEMATIC DIAGRAMS

PD-168 BOARD

For Schematic Diagram

- Refer to page 4-113 for printed wiring board.
- Refer to page 4-130 for waveforms.

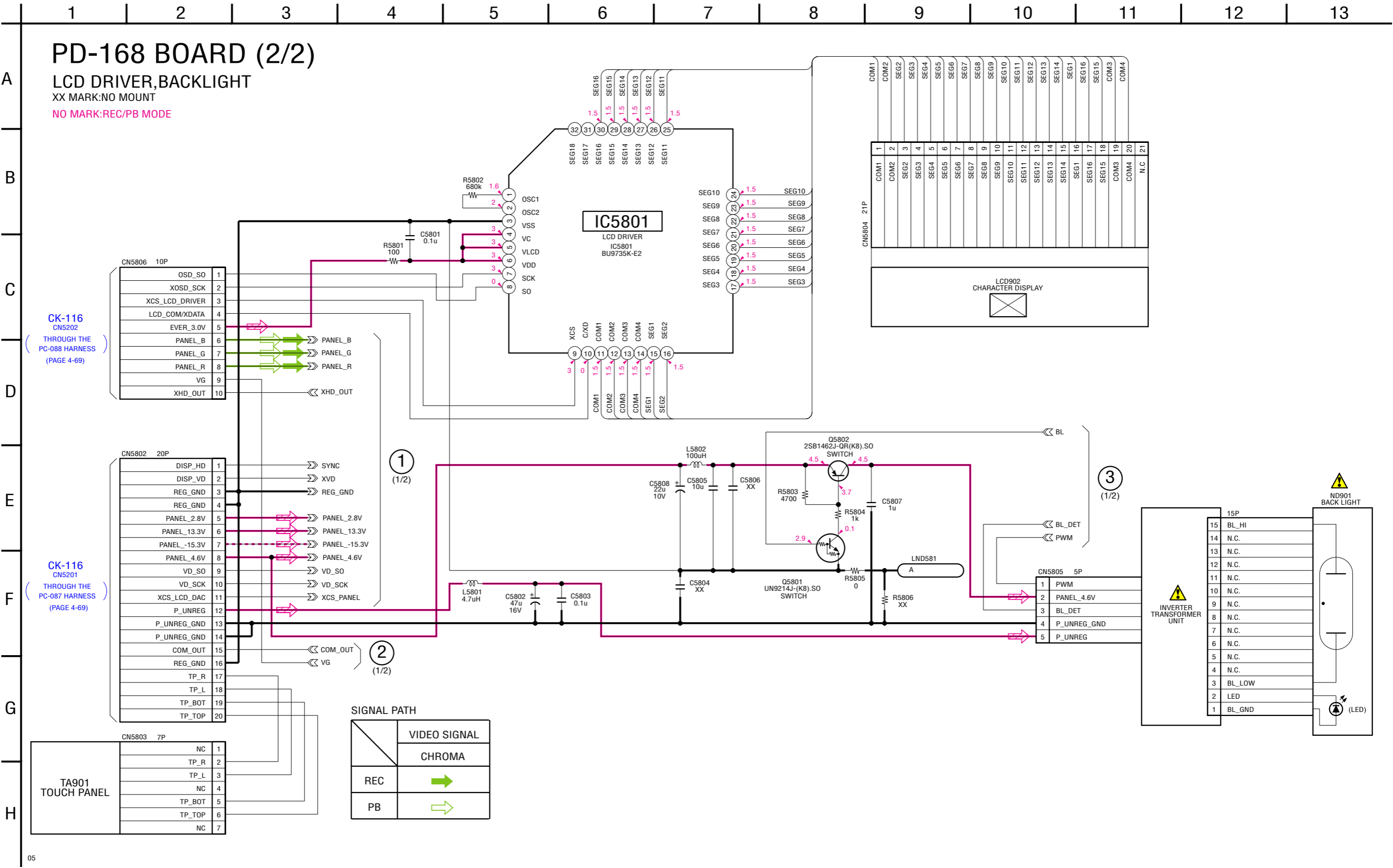




4-2. SCHEMATIC DIAGRAMS

PD-168 BOARD

For Schematic Diagram
• Refer to page 4-113 for printed wiring board.

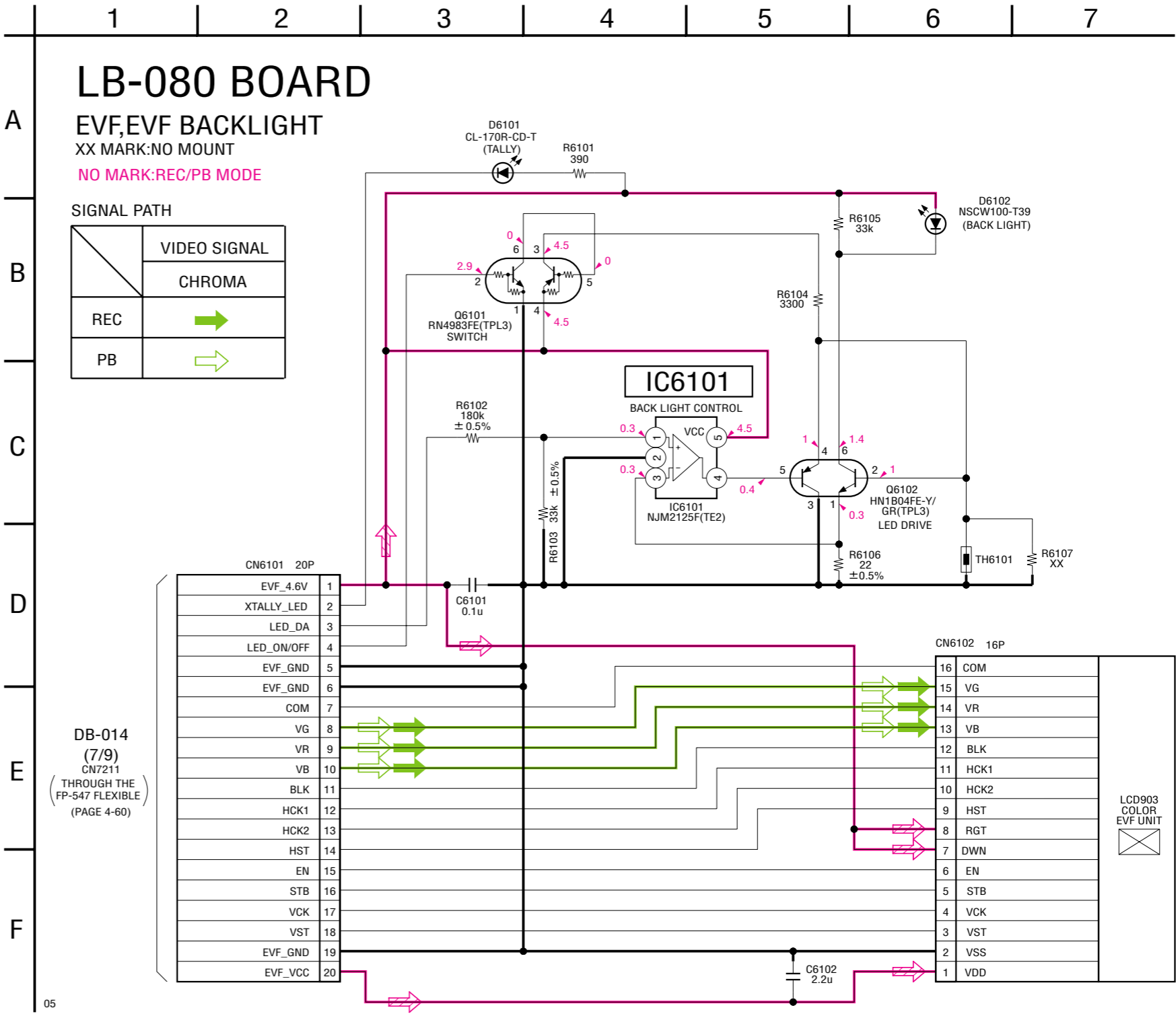


The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



For Schematic Diagram
• Refer to page 4-115 for printed wiring board.



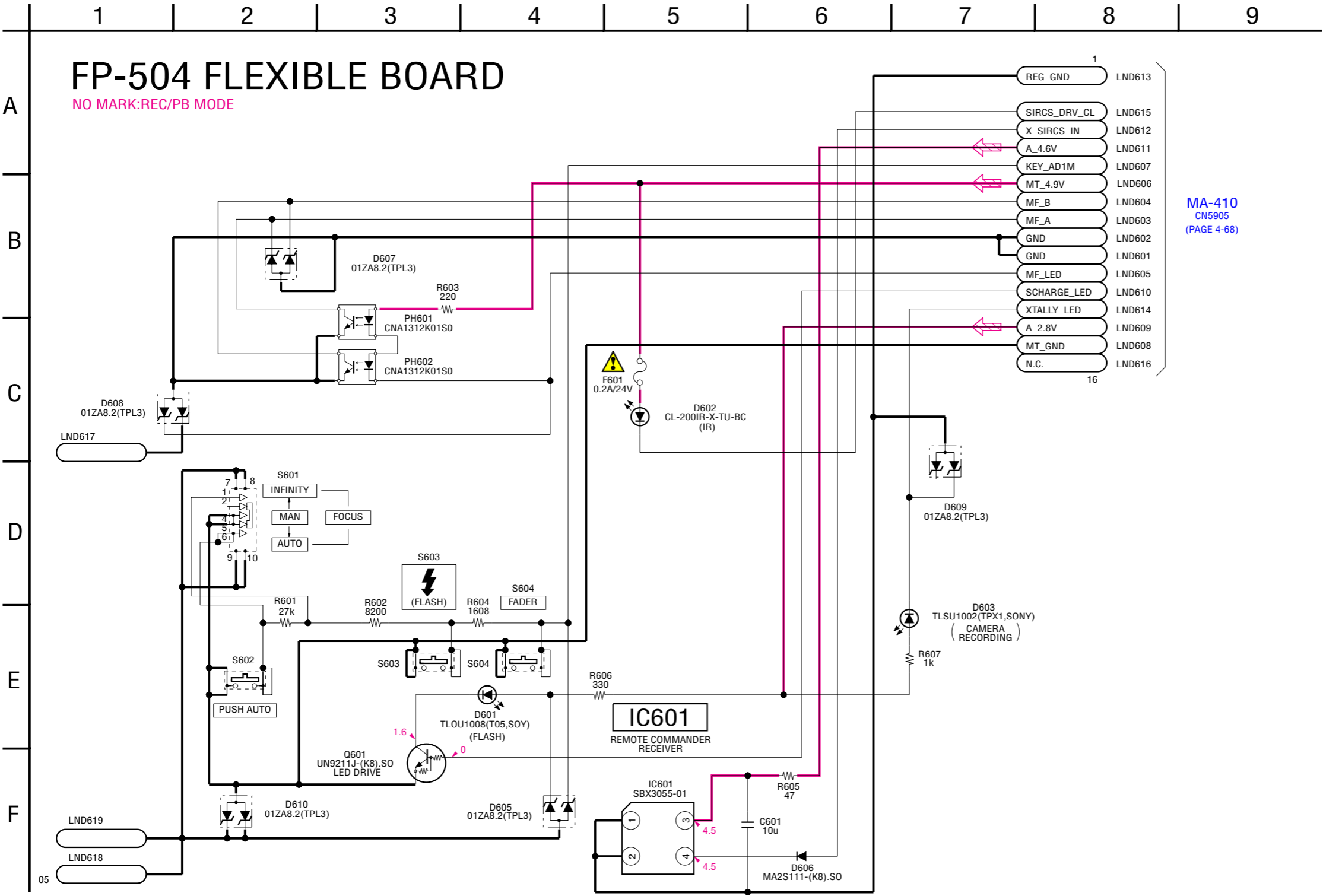




4-2. SCHEMATIC DIAGRAMS


FP-504 FLEXIBLE BOARD SIDE A

FP-504 FLEXIBLE BOARD SIDE B

For Schematic Diagram
• Refer to page 4-117 for printed wiring board.



The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



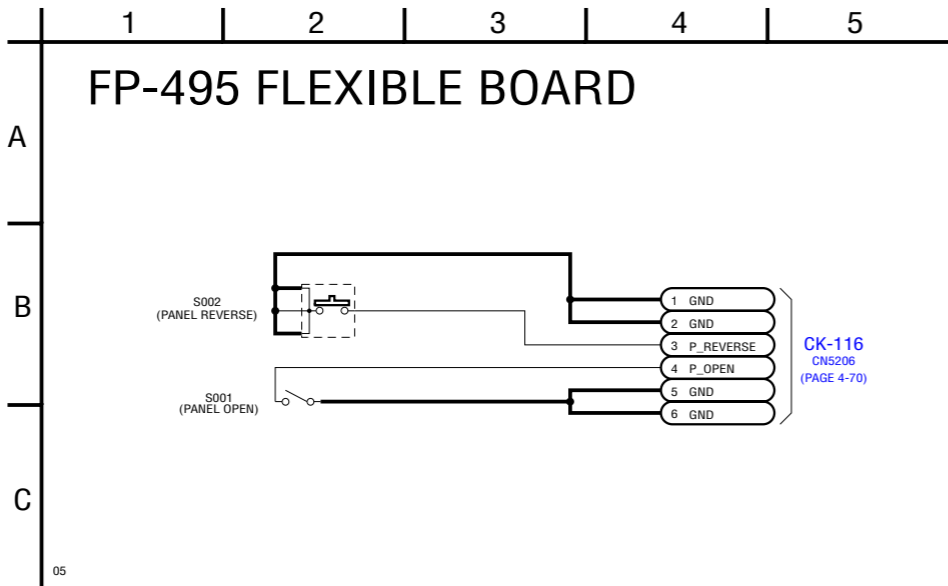
4-2. SCHEMATIC DIAGRAMS

FP-495 FLEXIBLE BOARD

FP-497 FLEXIBLE BOARD

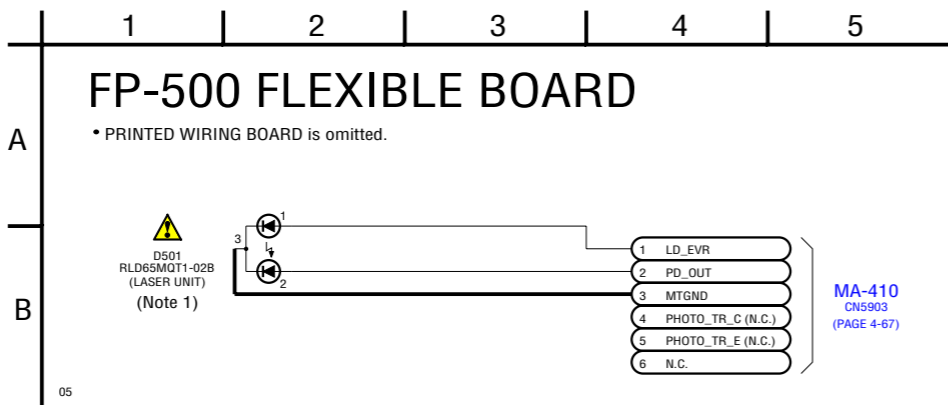
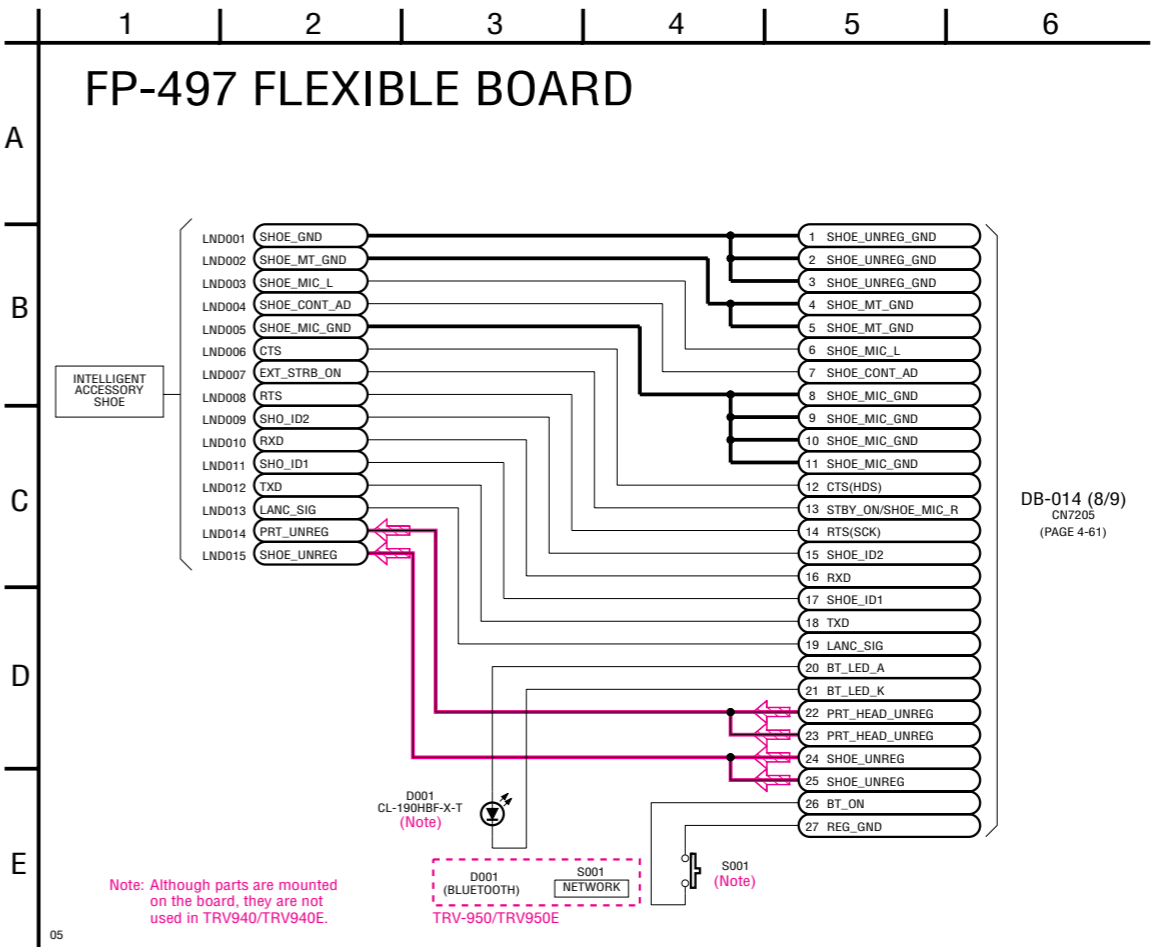
For Schematic Diagram

• Refer to page 4-121 for printed wiring board.



For Schematic Diagram

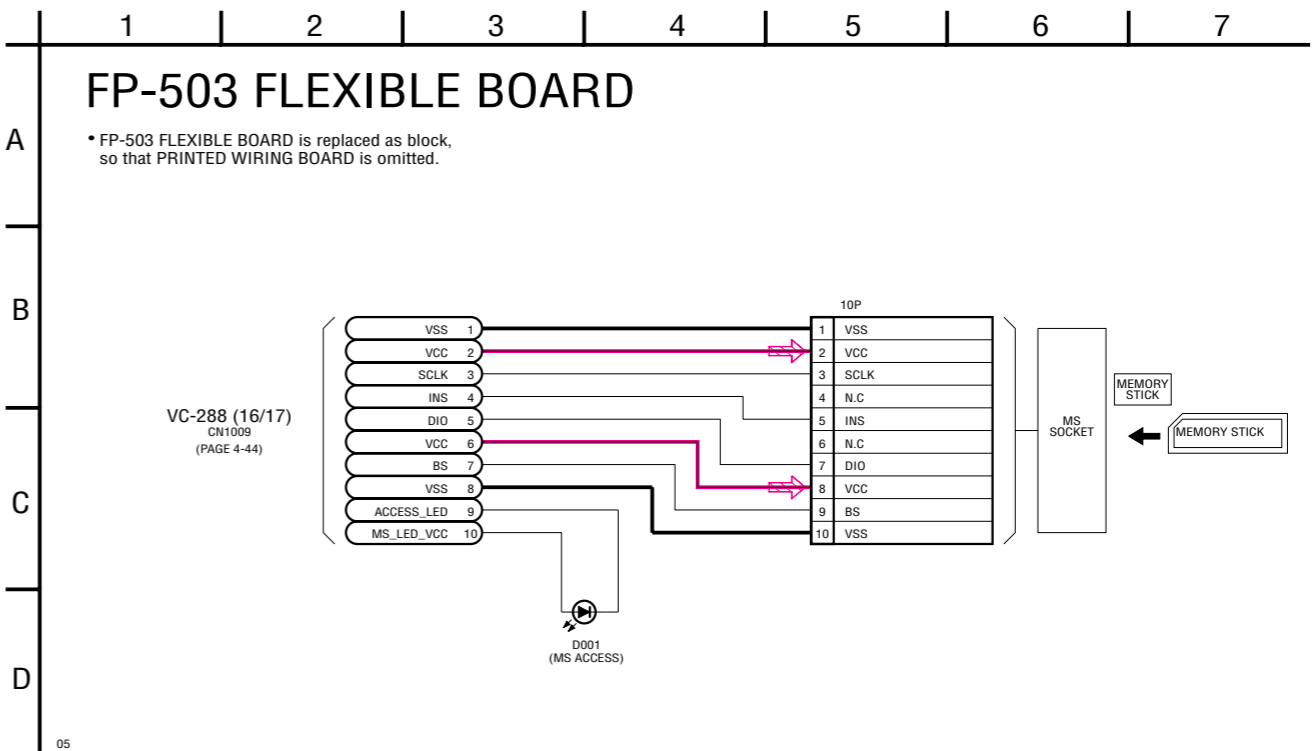
• Refer to page 4-122 for printed wiring board.



(Note 1) Be sure to read "SERVICE NOTE" on page 1-3 when replacing the laser unit (D501).

The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

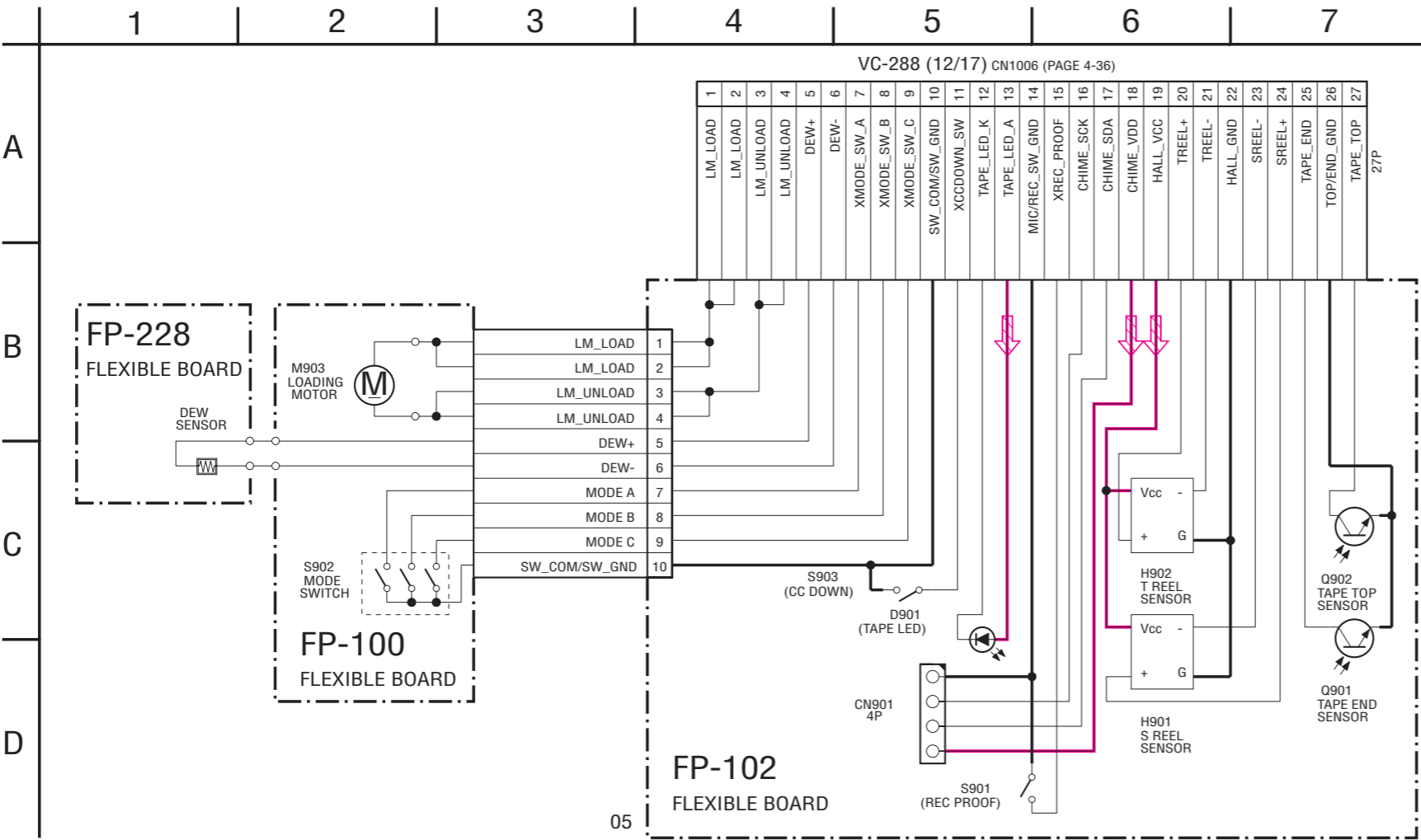




4-2. SCHEMATIC DIAGRAMS

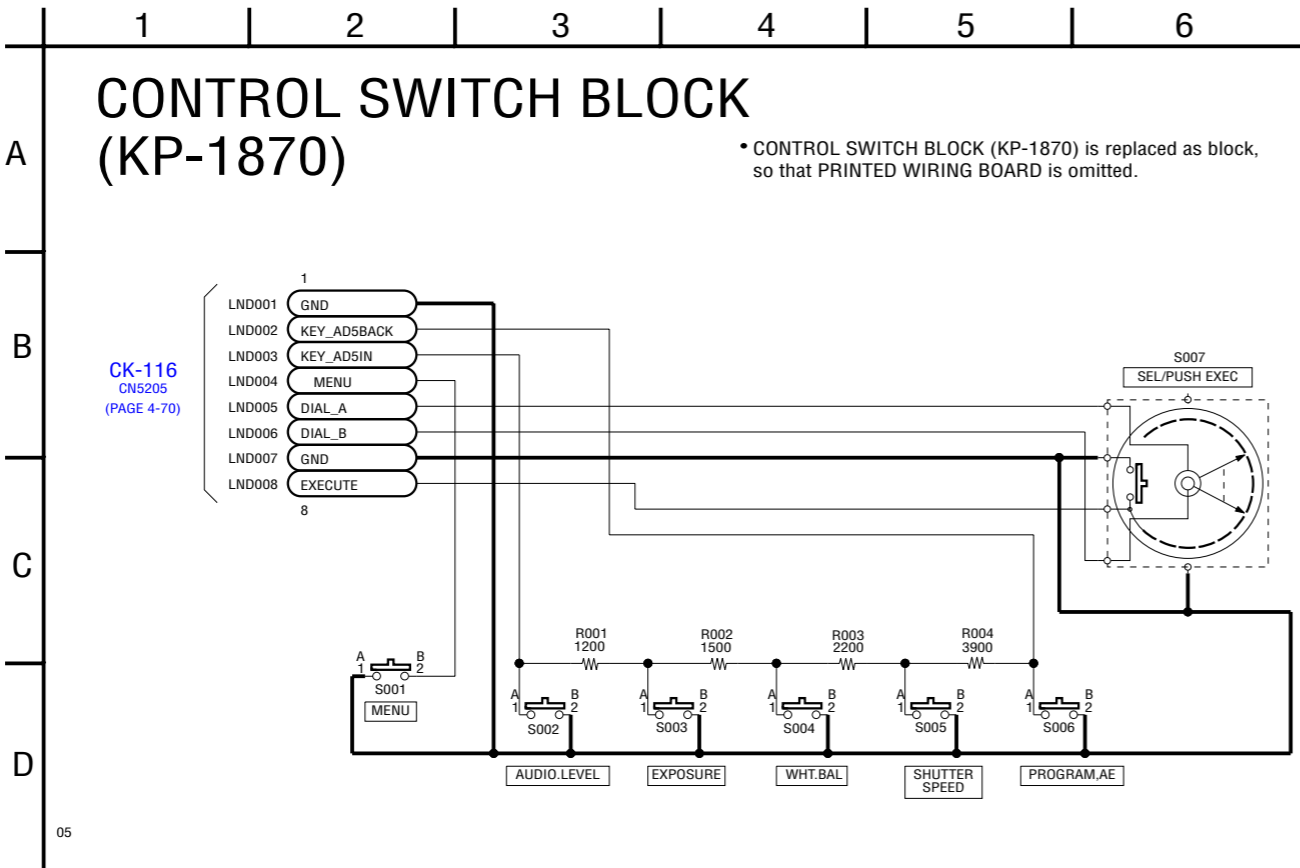
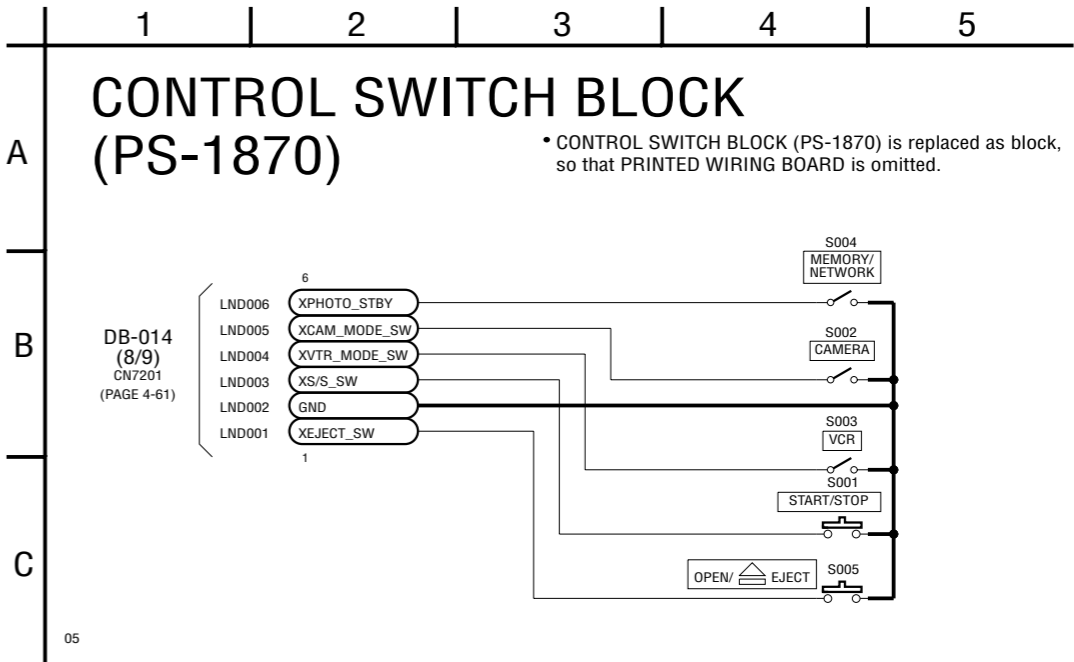
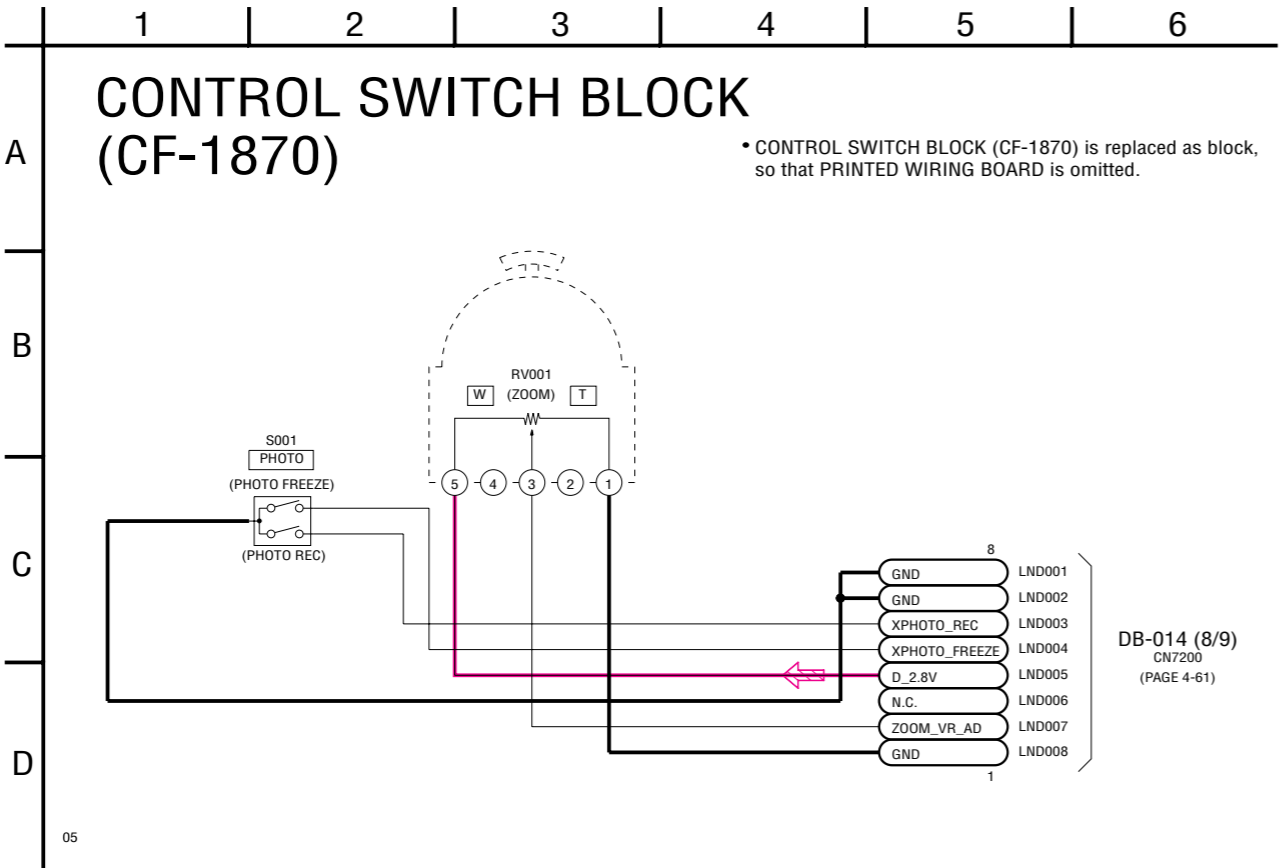
FP100, FP-102, FP-228 FLEXIBLE BOARD

For Schematic Diagram
• Refer to page 4-123 for printed wiring board.





4-2. SCHEMATIC DIAGRAMS





4-3. PRINTED WIRING BOARDS

Link

• CD-389 BOARD (SIDE A)	• JK-222 BOARD (SIDE B)
• CD-389 BOARD (SIDE B)	• PD-168 BOARD
• SE-132 BOARD	• LB-080 BOARD
• MA-410 BOARD	• FP-504 FLEXIBLE BOARD (SIDE A)
• CK-116 BOARD (SIDE A)	• FP-504 FLEXIBLE BOARD (SIDE B)
• CK-116 BOARD (SIDE B)	• FP-495, FP-497 FLEXIBLE BOARD
• JK-222 BOARD (SIDE A)	• FP-100, FP-102, FP-228 FLEXIBLE BOARD

• COMMON NOTE FOR PRINTED WIRING BOARDS		• WAVEFORMS
• MOUNTED PARTS LOCATION	• CIRCUIT BOARDS LOCATION	• FLEXIBLE BOARDS LOCATION

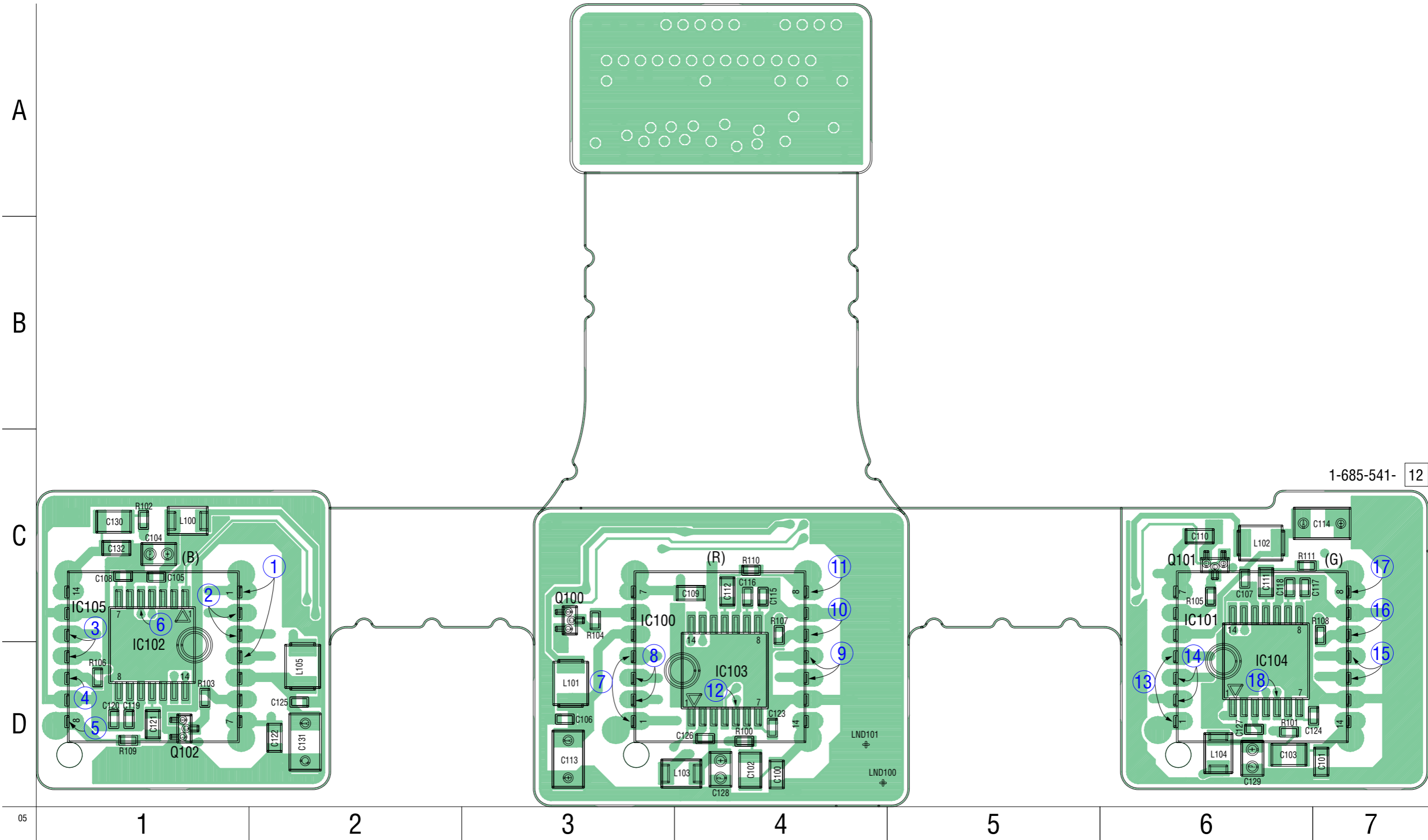


CD-389 (CCD IMAGER)

For Printed Wiring Board.

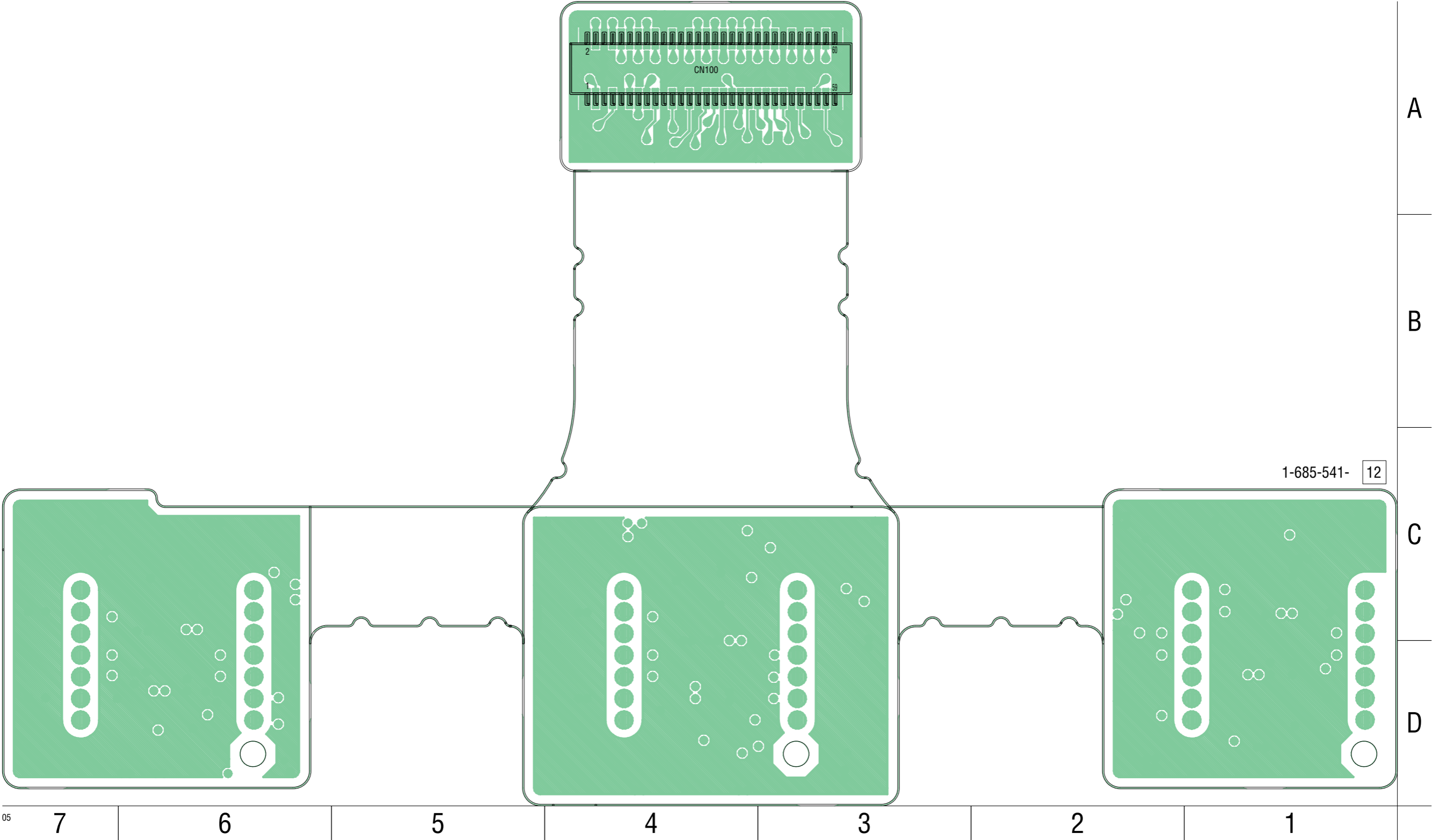
- :Uses unleaded solder.
- CD-389 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-131 for printed parts location.

CD-389 BOARD (SIDE A)





CD-389 BOARD (SIDE B)



Printed wiring boards of the VC-288, DB-014 boards are not shown.
Pages from 4-93 to 4-100 are not shown.

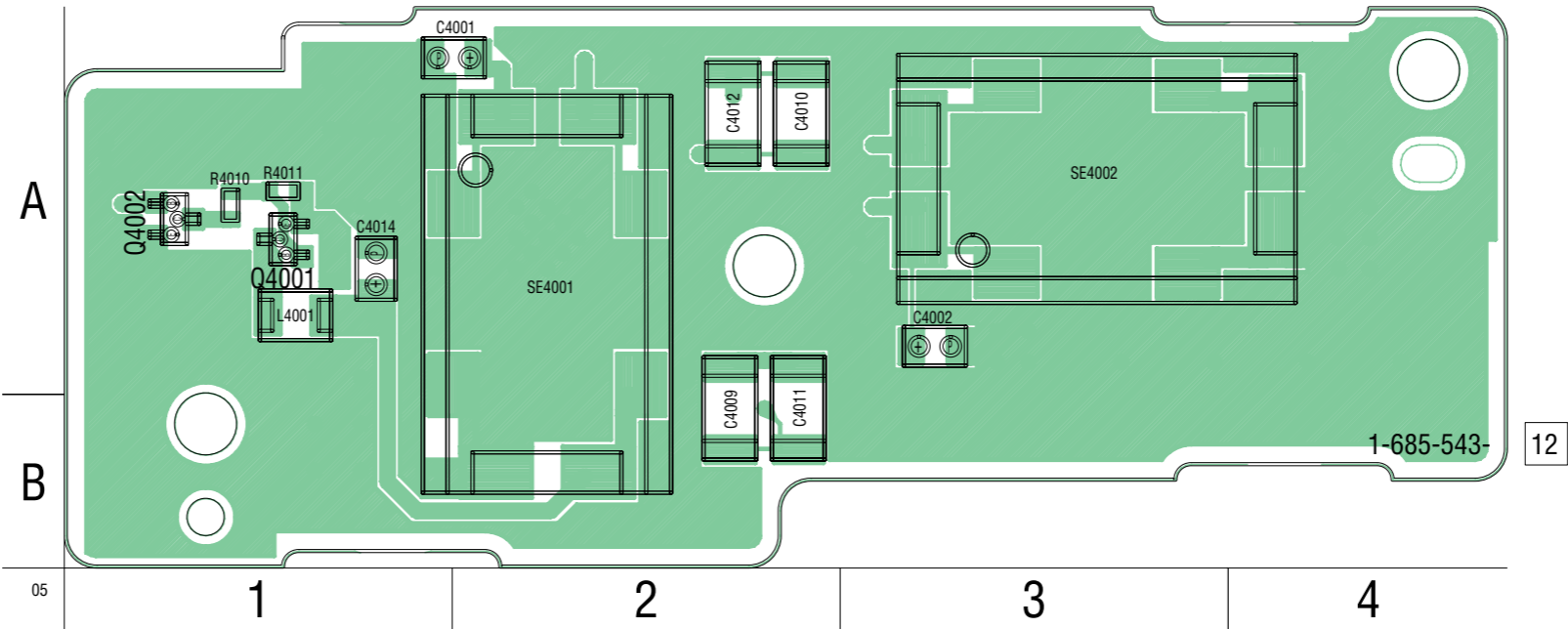


SE-132 (PITCH/YAW SENSOR)

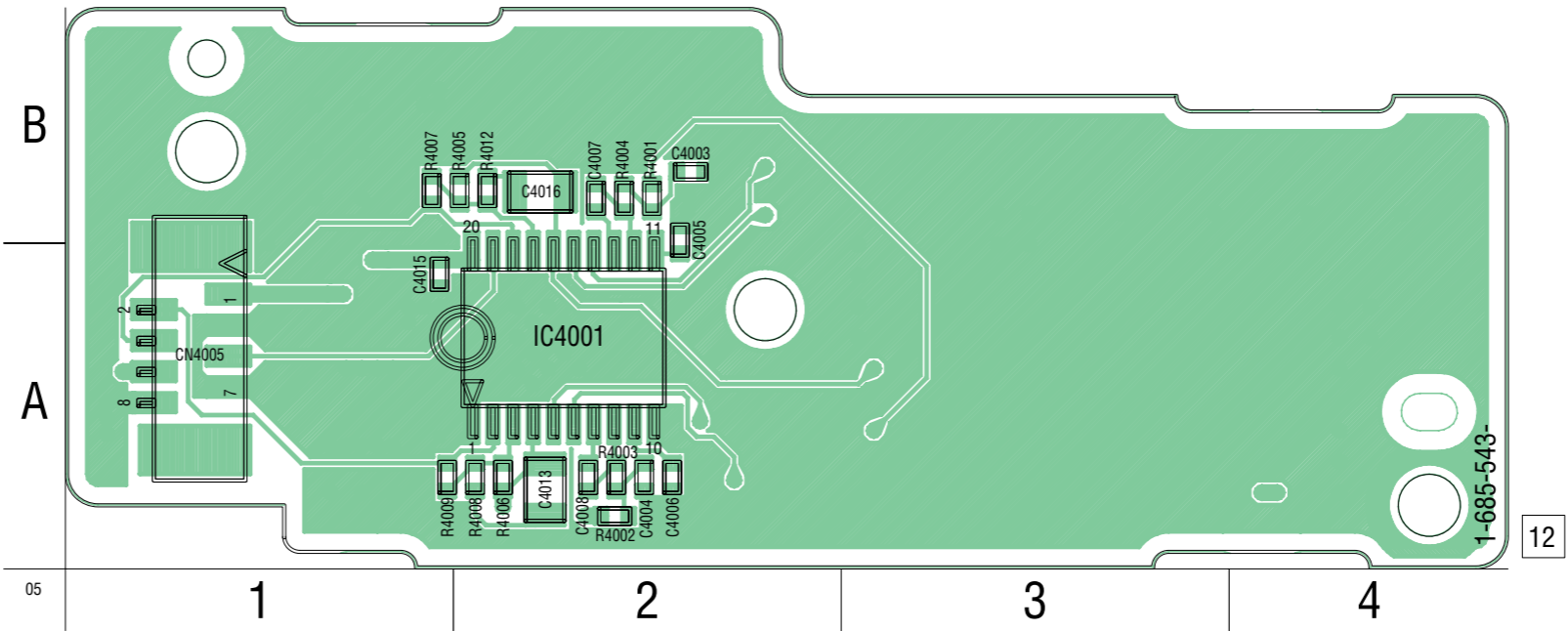
For Printed Wiring Board.

- :Uses unleaded solder.
- SE-132 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-136 for printed parts location.

SE-132 BOARD (SIDE A)



SE-132 BOARD (SIDE B)





4-2. SCHEMATIC DIAGRAMS

4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

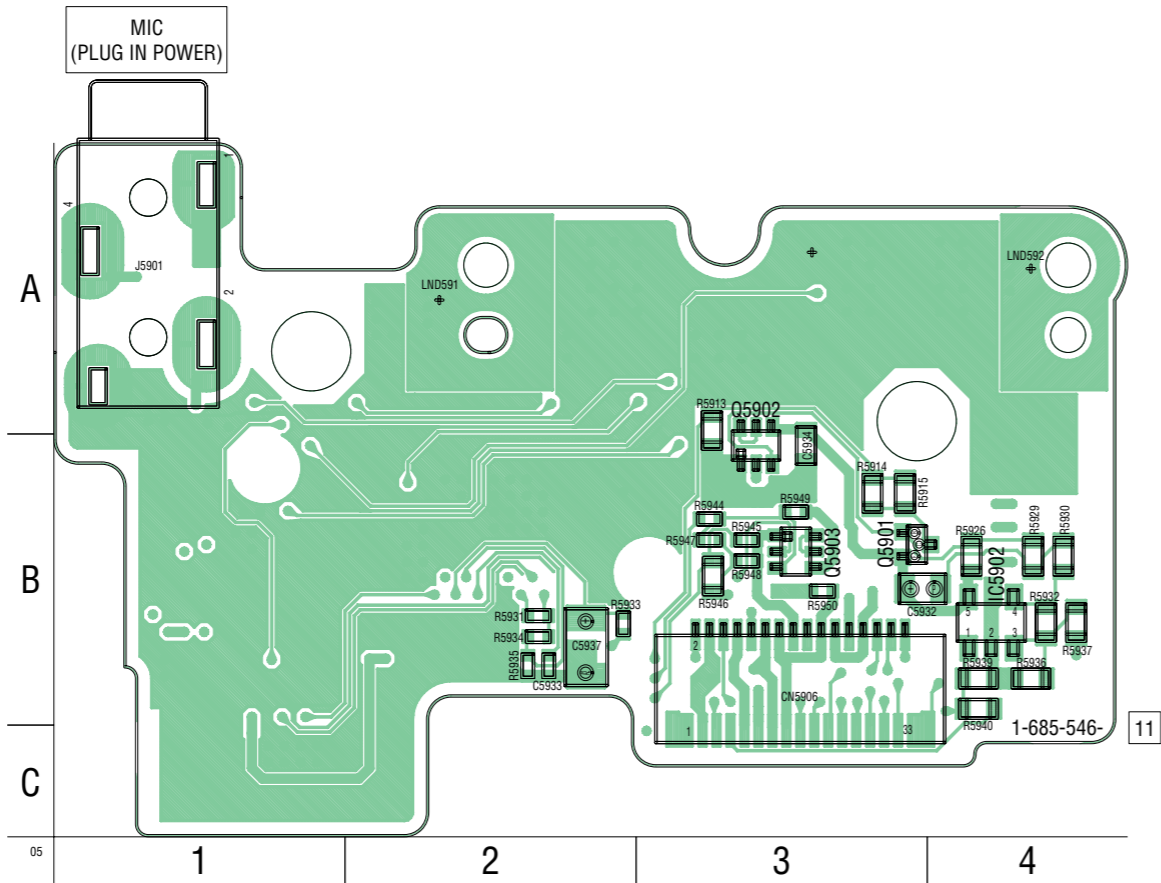
MA-410
(MIC AMP, AF LASER CONTROL)

For Printed Wiring Board.

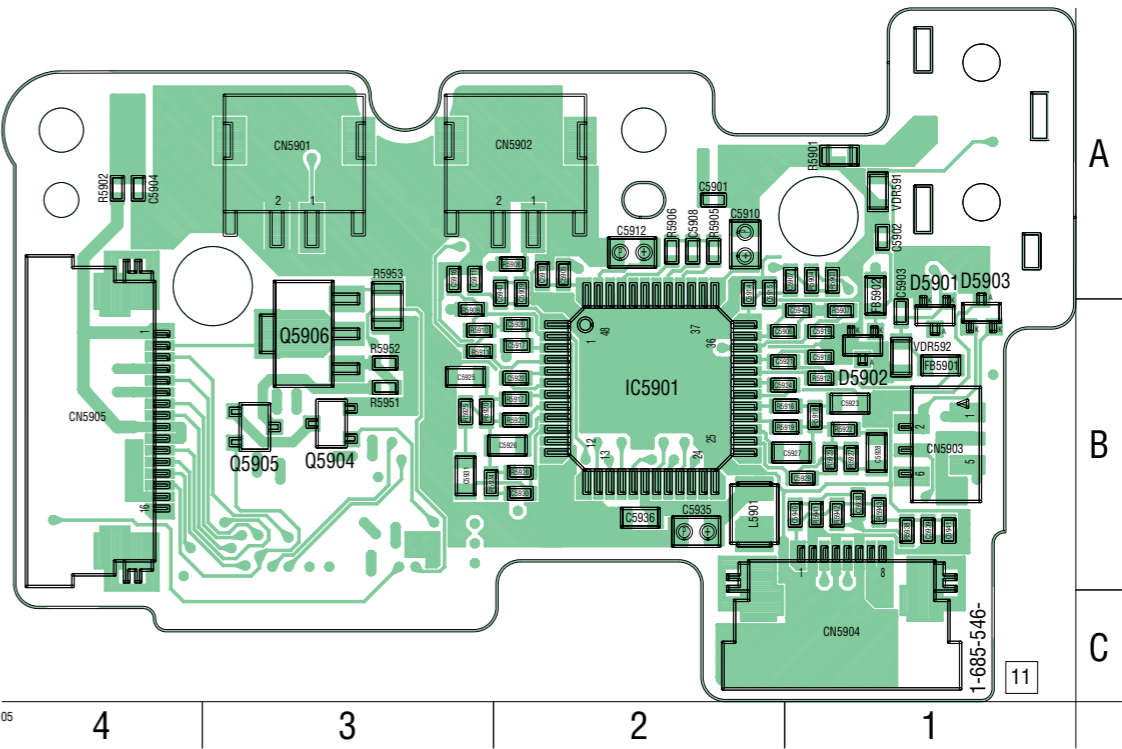
- :Uses unleaded solder.
- MA-410 board is four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-136 for printed parts location.

Suffix number **11**

MA-410 BOARD (SIDE A)

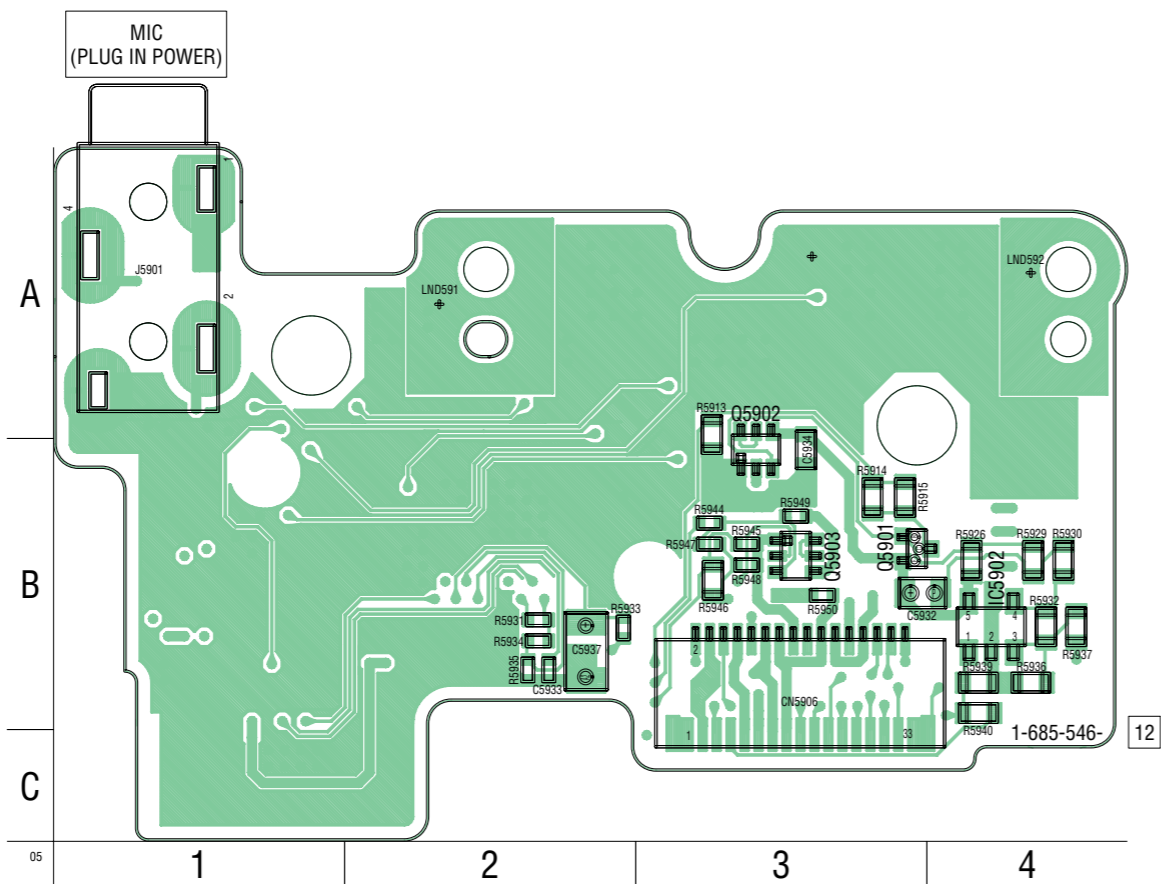


MA-410 BOARD (SIDE B)

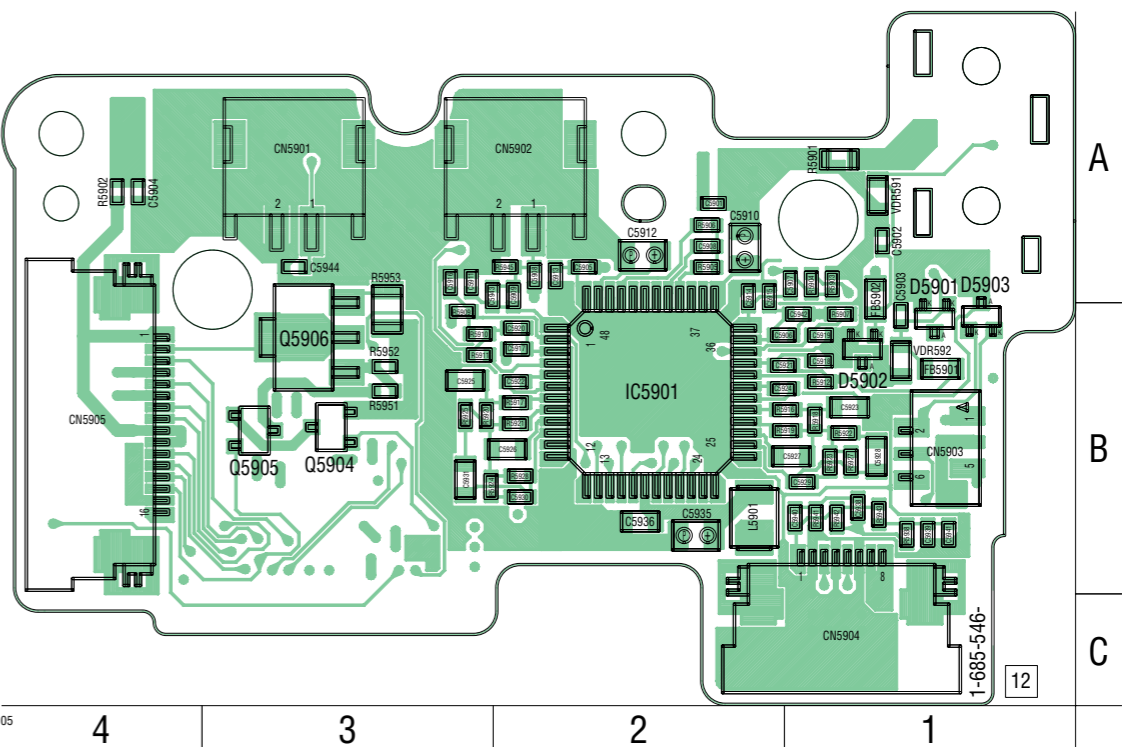


Suffix number **12**

MA-410 BOARD (SIDE A)



MA-410 BOARD (SIDE B)





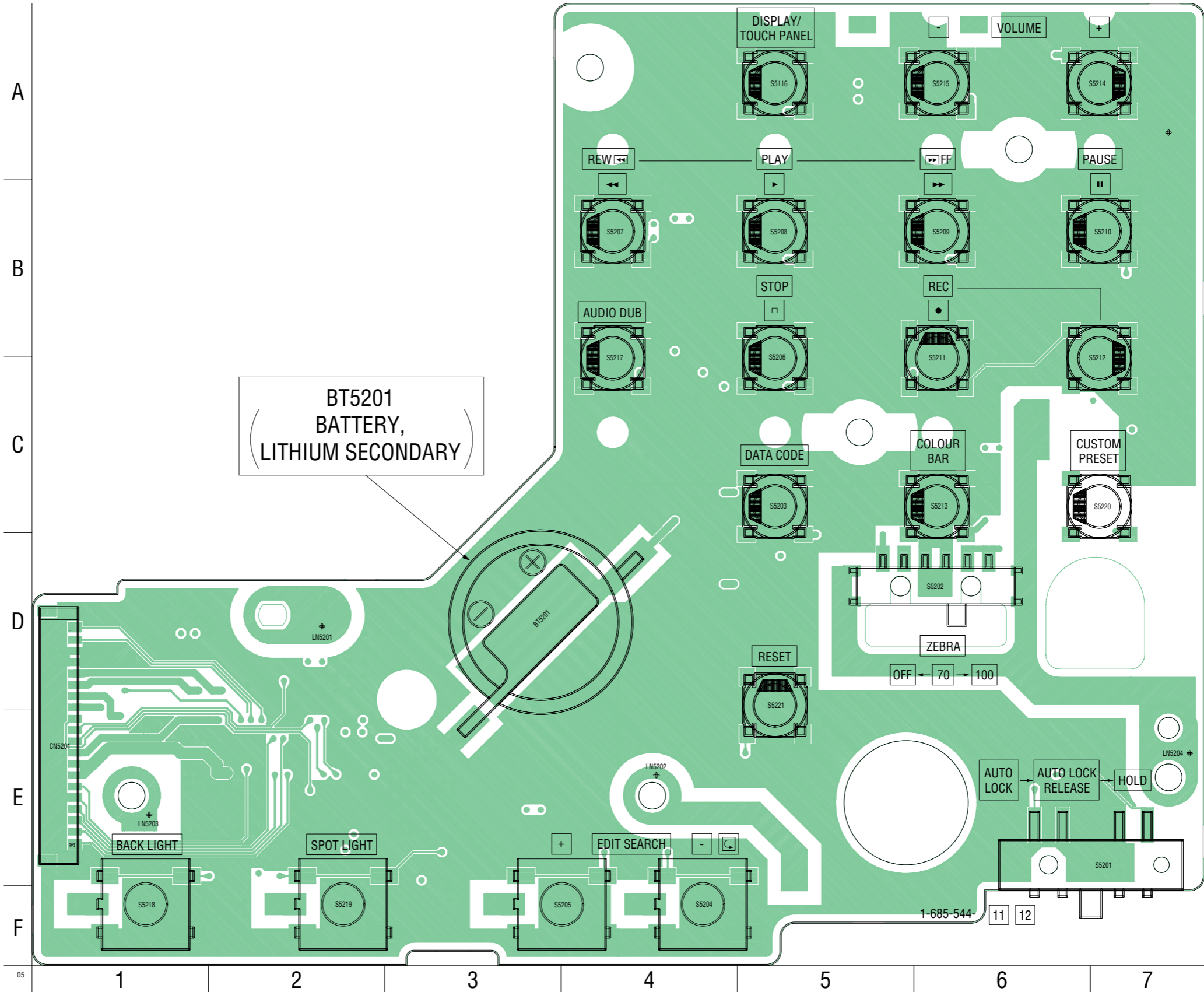
CK-116 (CONTROL SWITCH)

For Printed Wiring Board.

- :Uses unleaded solder.
- CK-116 board is four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-136 for printed parts location.

CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

CK-116 BOARD (SIDE A)



The image shows a top-down view of a printed circuit board (PCB) layout. The board is green with white traces. Various components are labeled with their designators and values. The layout includes several circular cutouts and mounting holes. A coordinate grid is overlaid on the right and bottom edges, with letters A through F vertically and numbers 1 through 7 horizontally. The components are distributed across the board, with a higher density of components on the right side. The layout is symmetrical about a vertical center line.

Key components and their locations include:

- Resistors:** R5201, R5202, R5203, R5204, R5205, R5206, R5207, R5208, R5209, R5210, R5211, R5212, R5213, R5214, R5215, R5216, R5217, R5218, R5219, R5220, R5221, R5222, R5223, R5224, R5225, R5226, R5227, R5228, R5229, R5230, R5231, R5232, R5233, R5234, R5235, R5236.
- Capacitors:** C5201, C5202, C5203.
- Diodes:** D5201, D5202, D5203, D5204, D5205, D5206, D5207, D5208, D5209.
- Connectors:** CN5201, CN5202, CN5203, CN5204, CN5205, CN5206.

The layout is a professional engineering drawing, likely a Gerber file or a similar manufacturing-ready format. The components are represented by their physical footprints, and the traces show the electrical connections between them. The coordinate grid is used for easy reference and identification of components on the board.

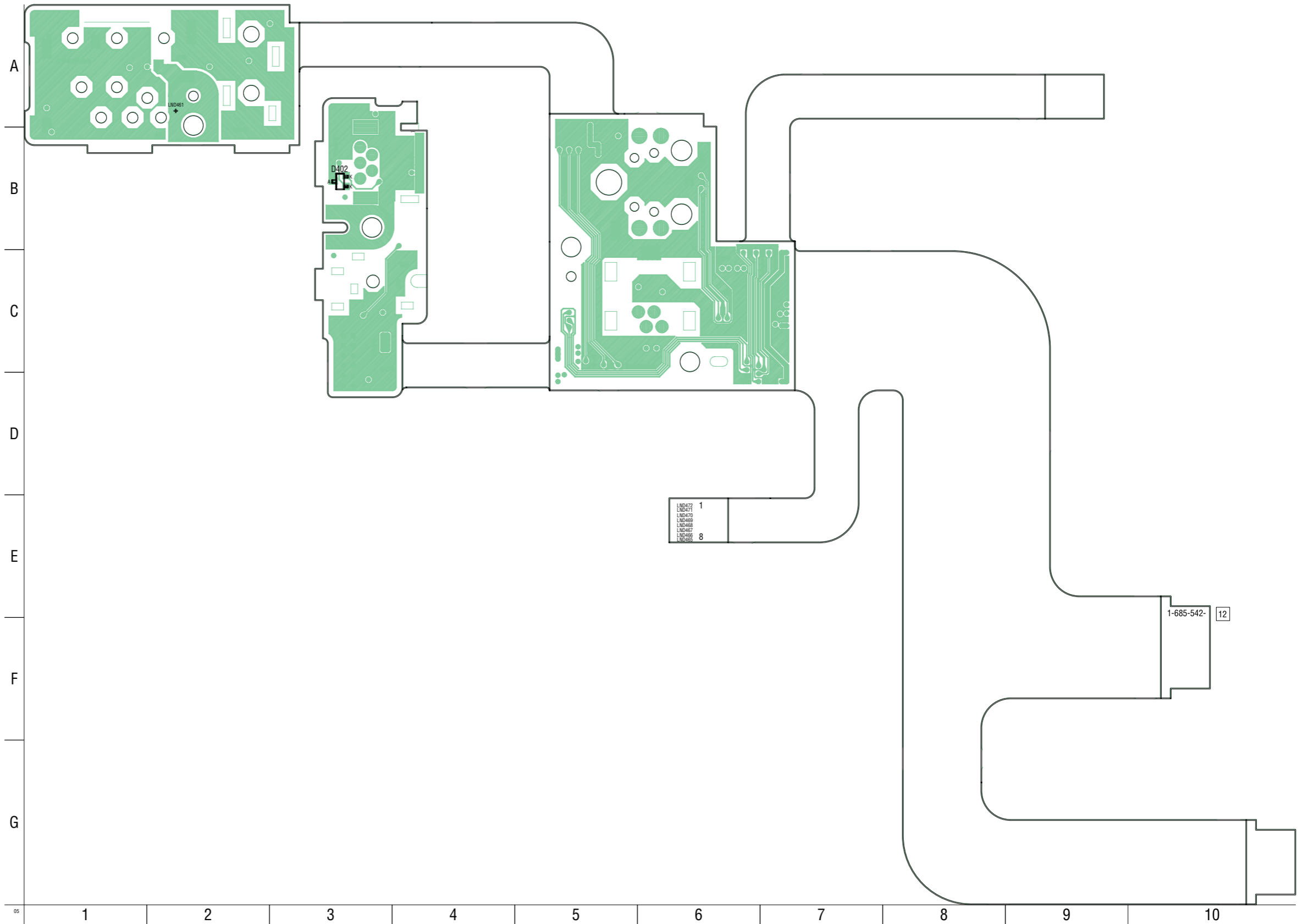


JK-222 (AV IN/OUT, DV/USB CONNECTOR)

For Printed Wiring Board.

- :Uses unleaded solder.
- JK-222 board is six-layer print board. However, the patterns of layers 2 to 5 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.
- See page 4-136 for printed parts location.

JK-222 BOARD (SIDE A)



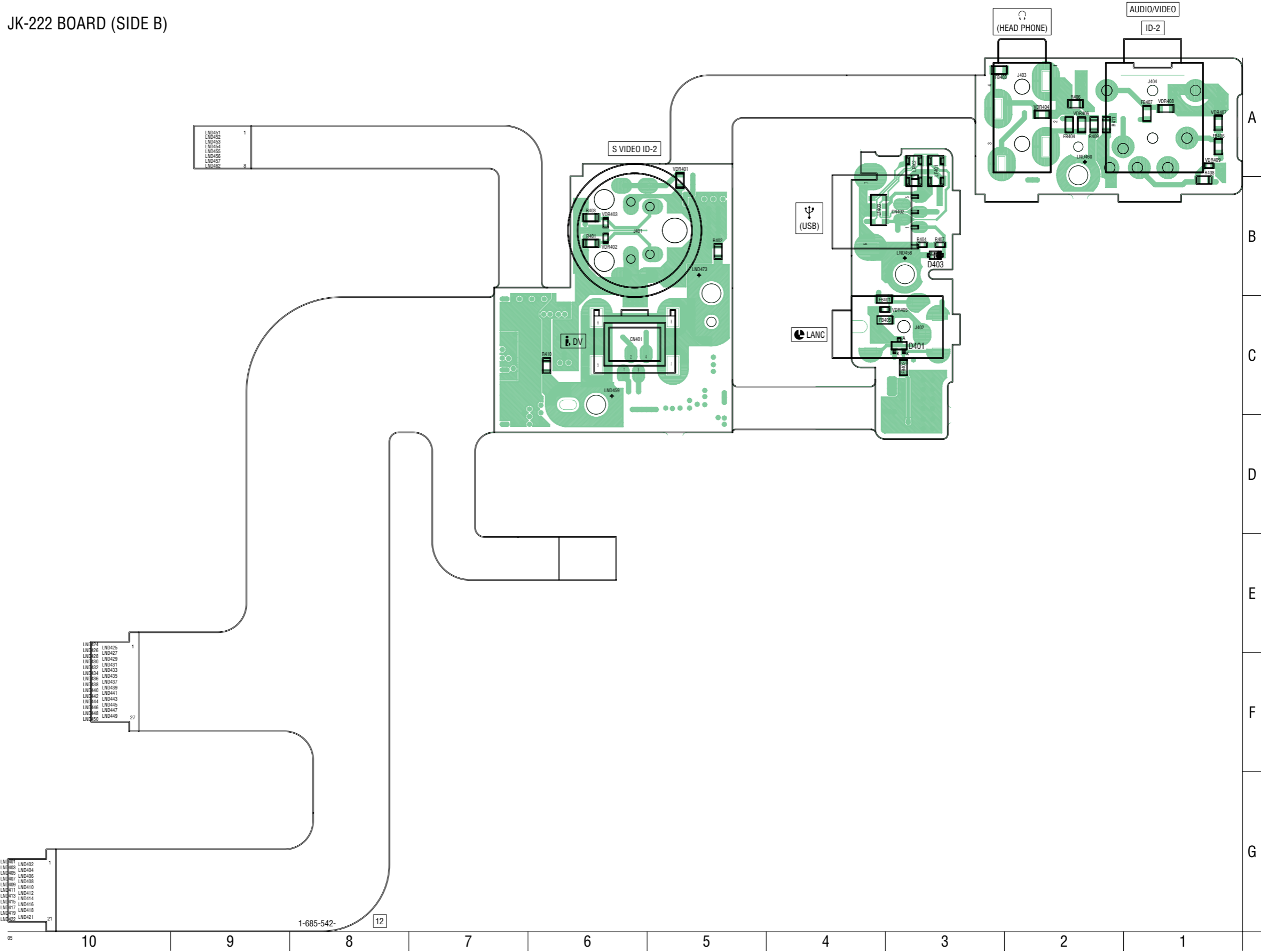


4-2. SCHEMATIC DIAGRAMS

4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

JK-222 BOARD (SIDE B)



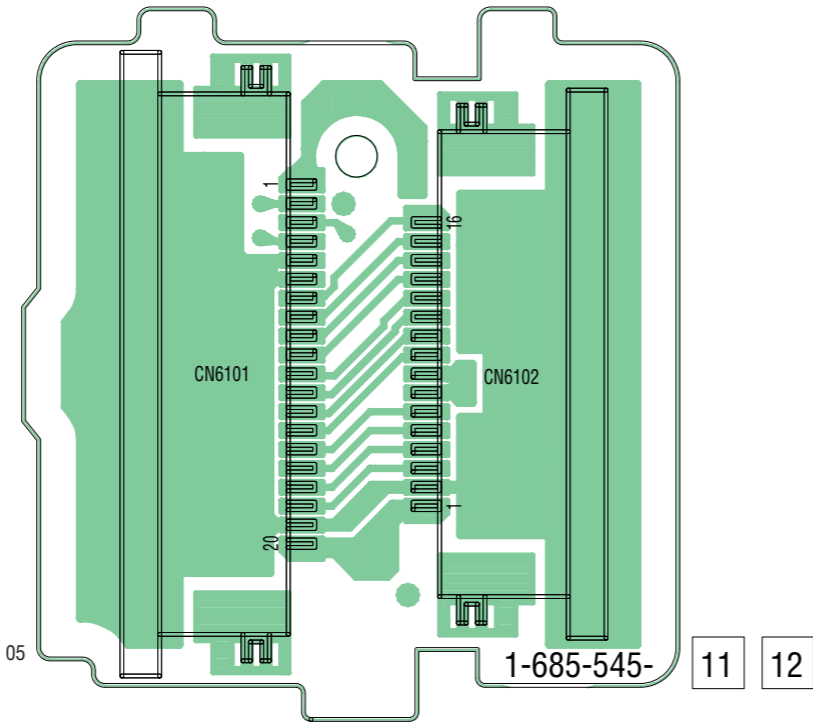


LB-080 (EVF, EVF BACKLIGHT)

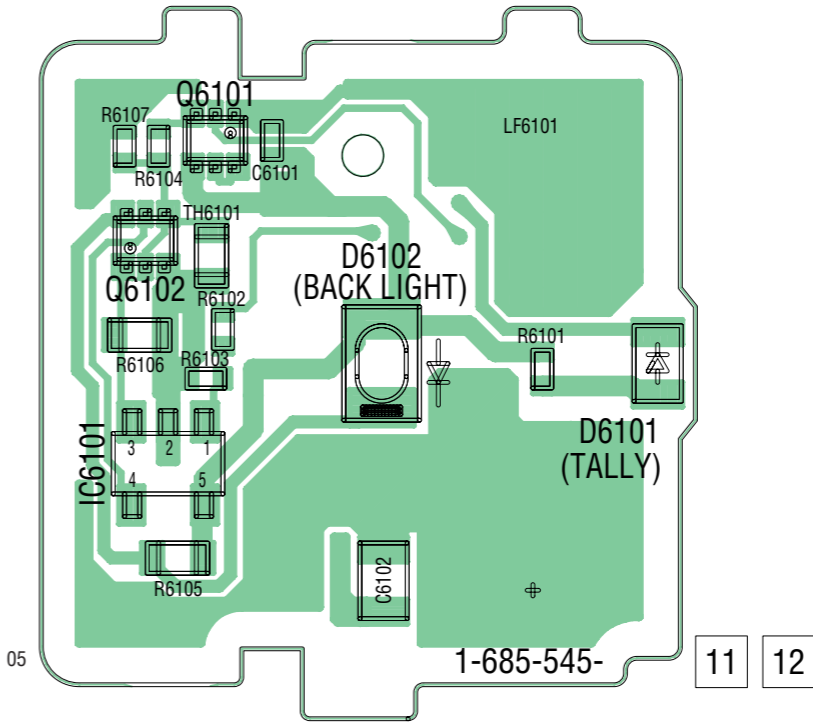
For Printed Wiring Board.

- :Uses unleaded solder.
- LB-080 board is four-layer print board. However, the patterns of layers 2 to 3 have not been included in the diagram.
- There are a few cases that the part isn't mounted in this model is printed on this diagram.

LB-080 BOARD (SIDE A)



LB-080 BOARD (SIDE B)



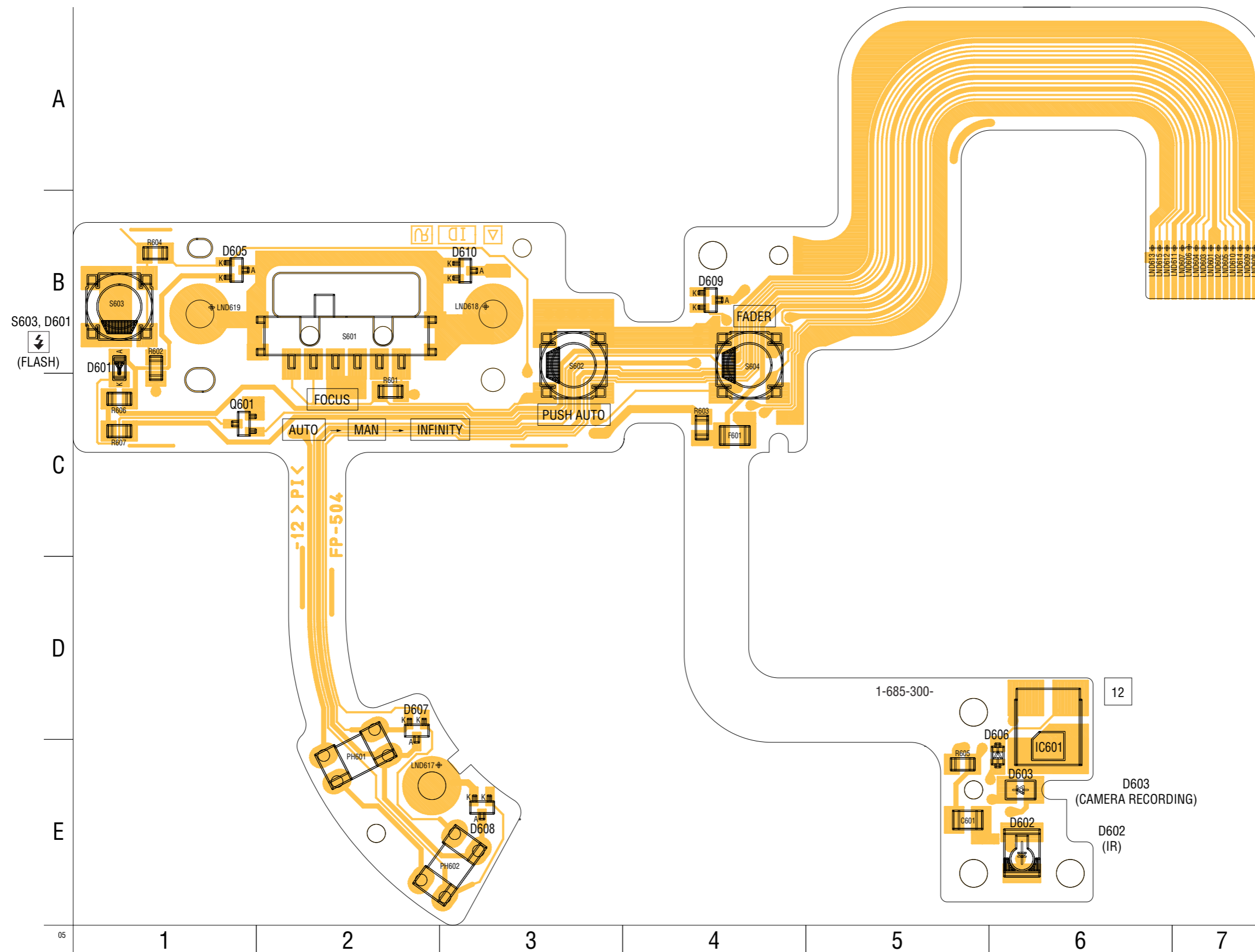


FP-504 FLEXIBLE

For Printed Wiring Board.

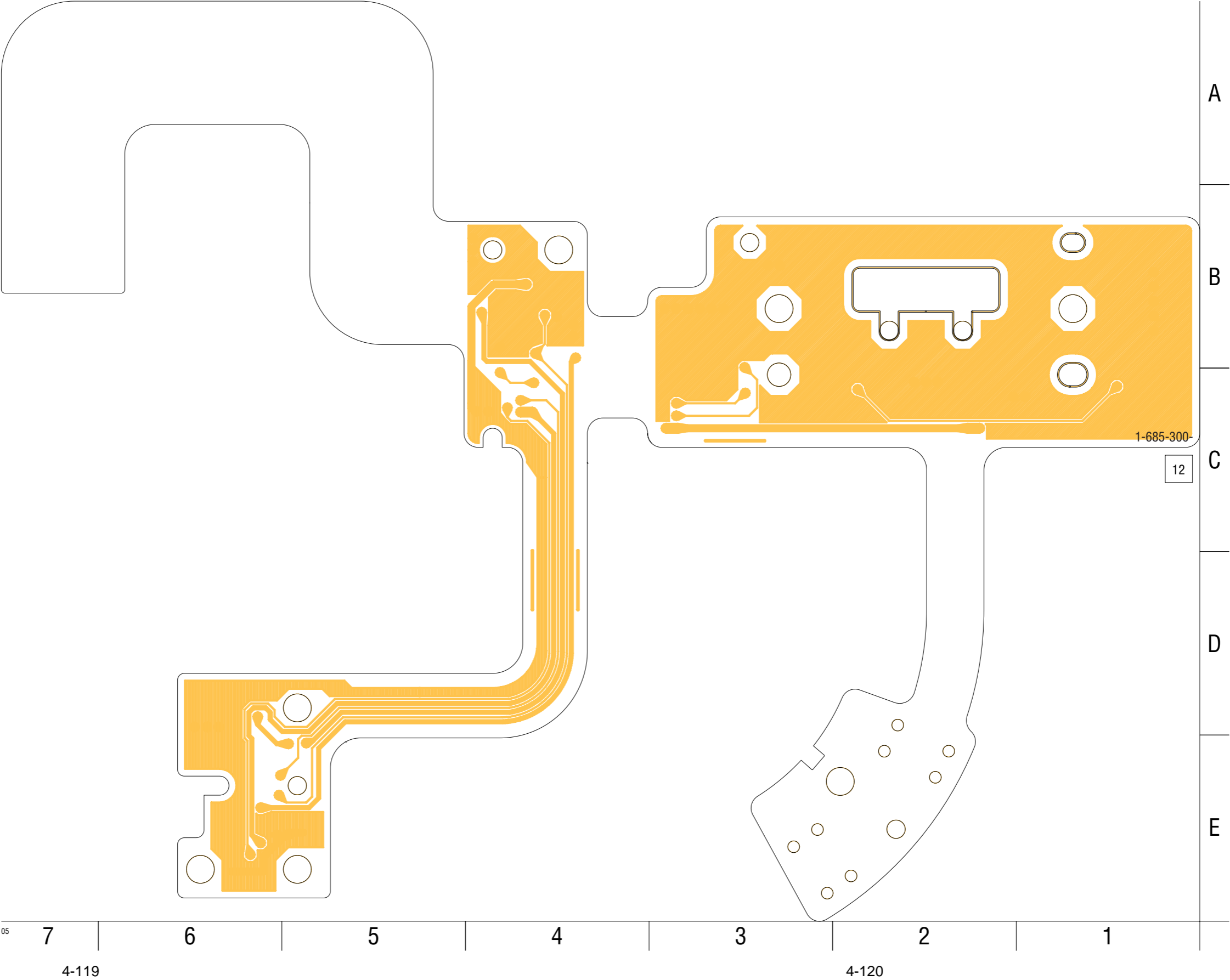
- See page 4-137 for printed parts location.

FP-504 FLEXIBLE BOARD (SIDE A)





FP-504 FLEXIBLE BOARD (SIDE B)





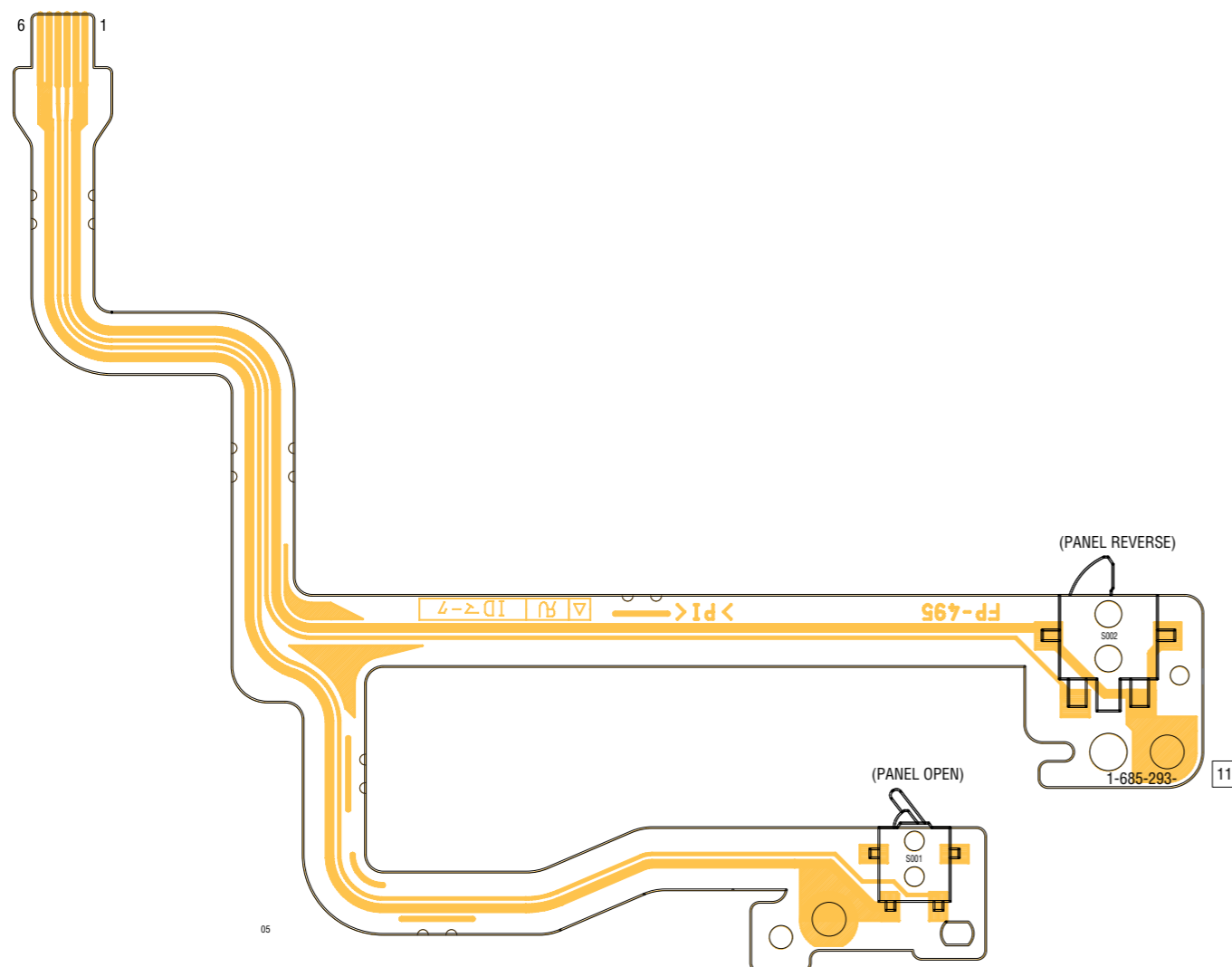
FP-495, FP-497 FLEXIBLE

4-2. SCHEMATIC DIAGRAMS

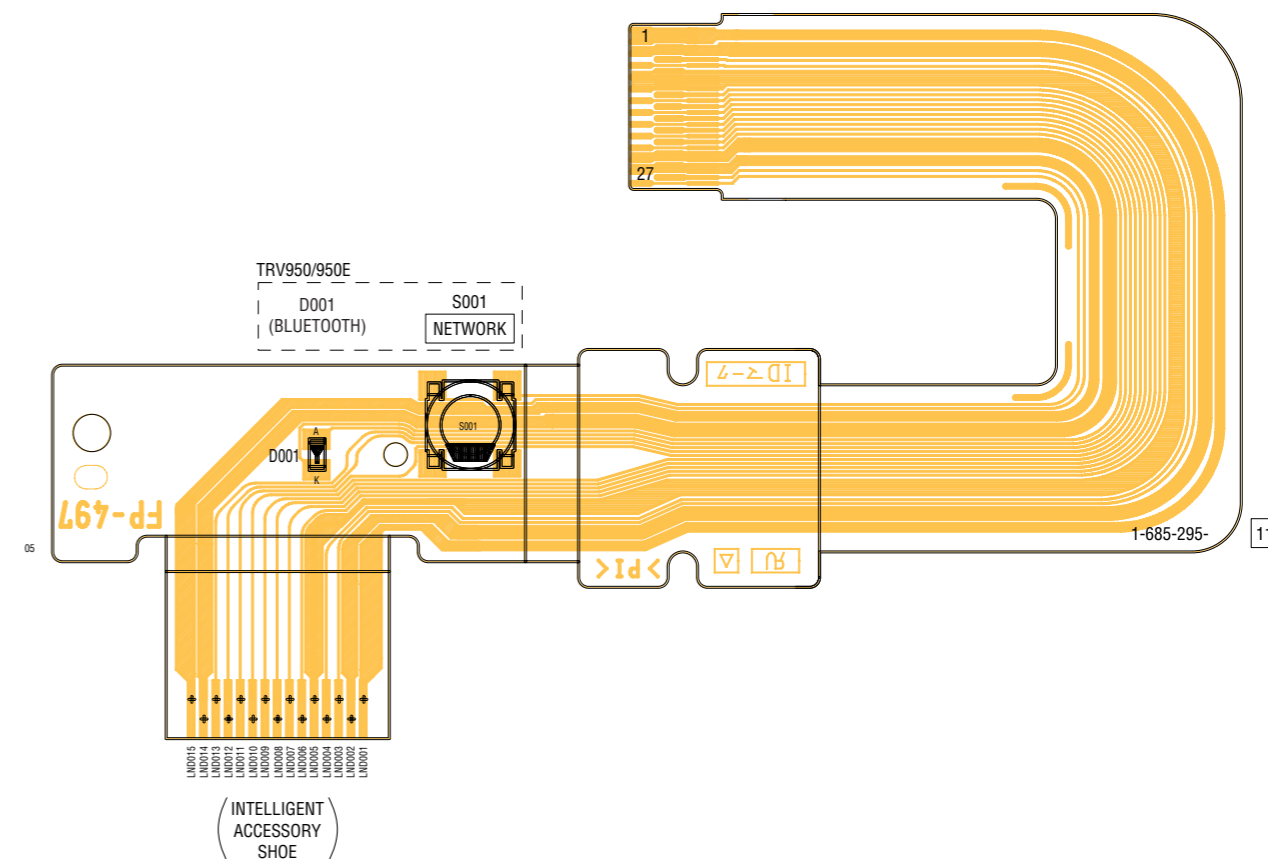
4-3. PRINTED WIRING BOARDS

DCR-TRV940/TRV940E/TRV950/TRV950E

FP-495 FLEXIBLE BOARD



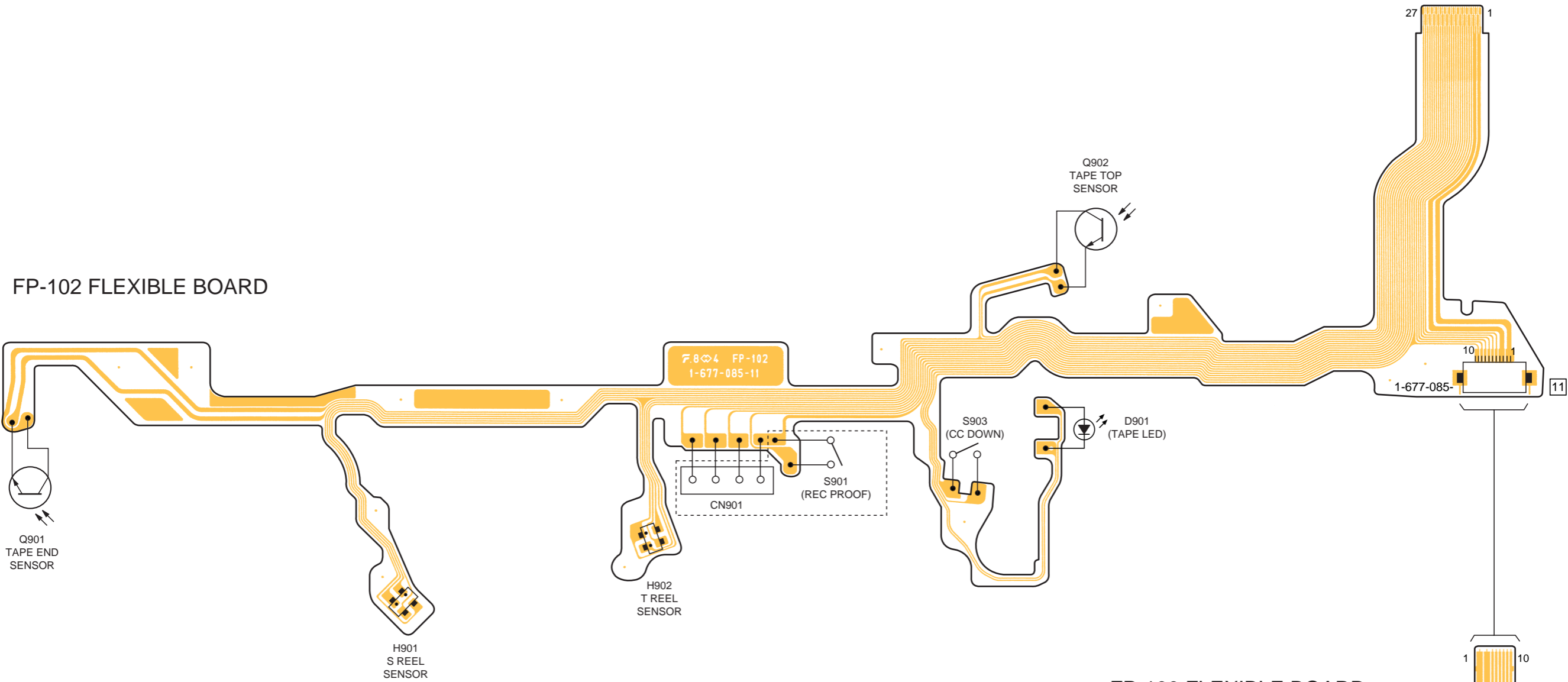
FP-497 FLEXIBLE BOARD



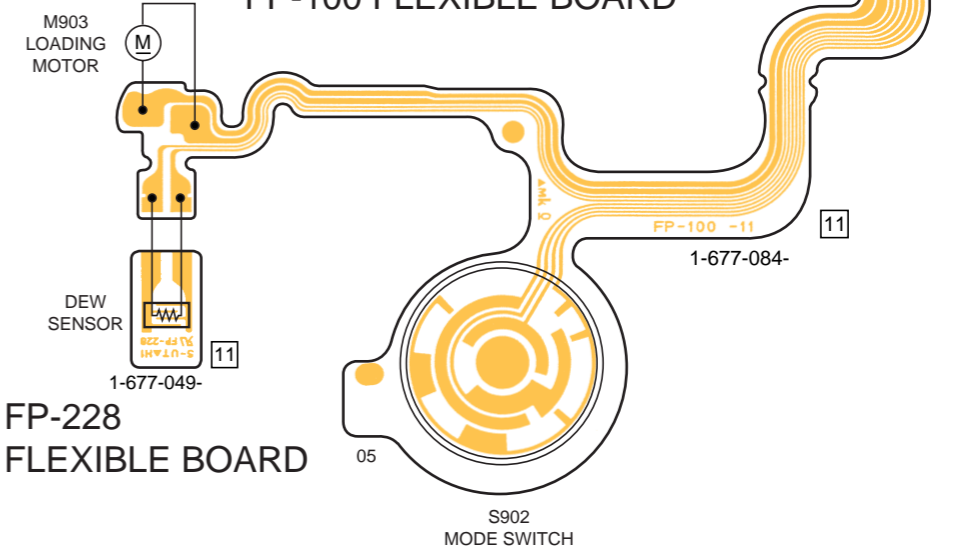


FP-100, FP-102, FP-228 FLEXIBLE

FP-102 FLEXIBLE BOARD



FP-100 FLEXIBLE BOARD

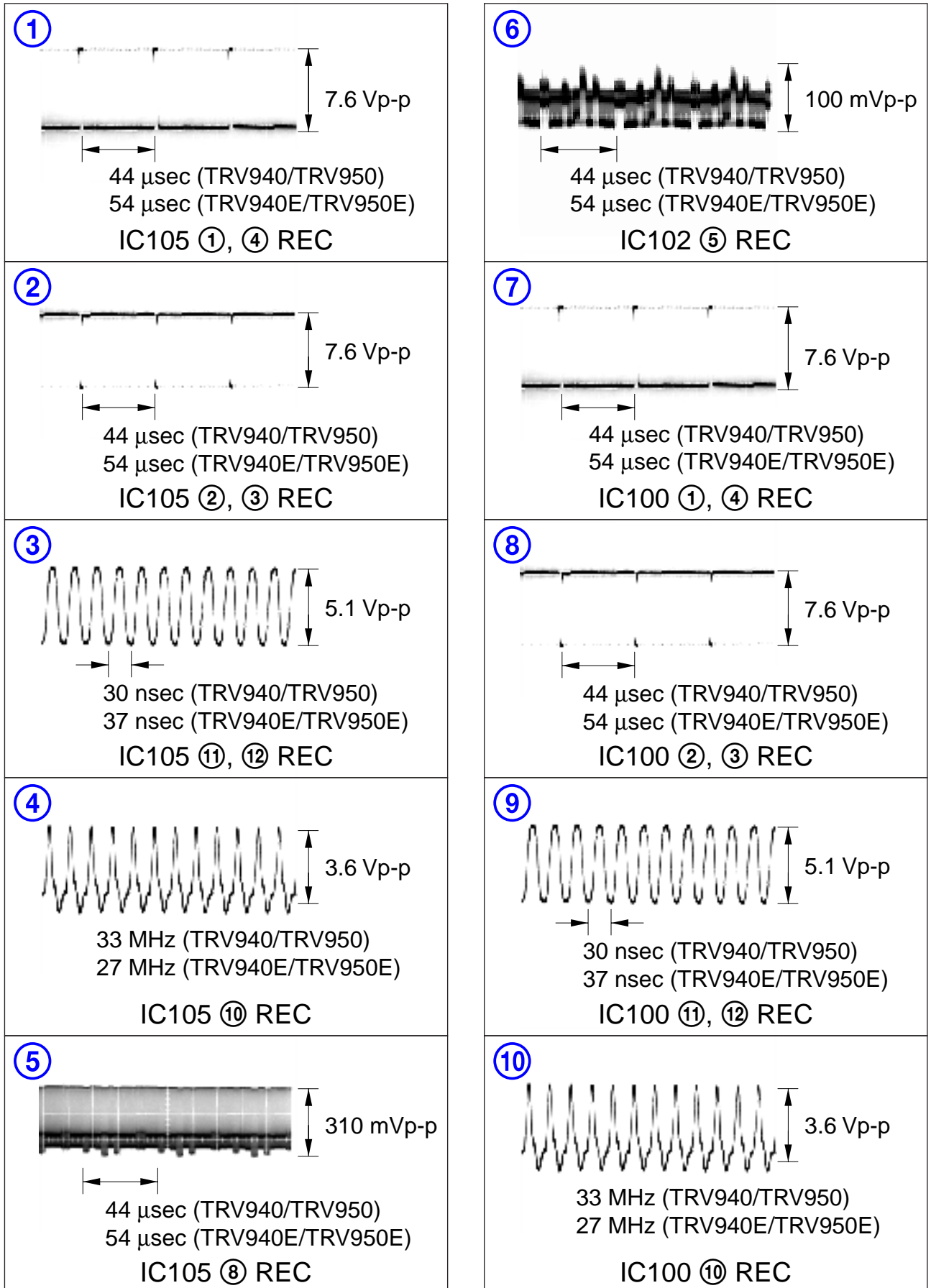


FP-228 FLEXIBLE BOARD



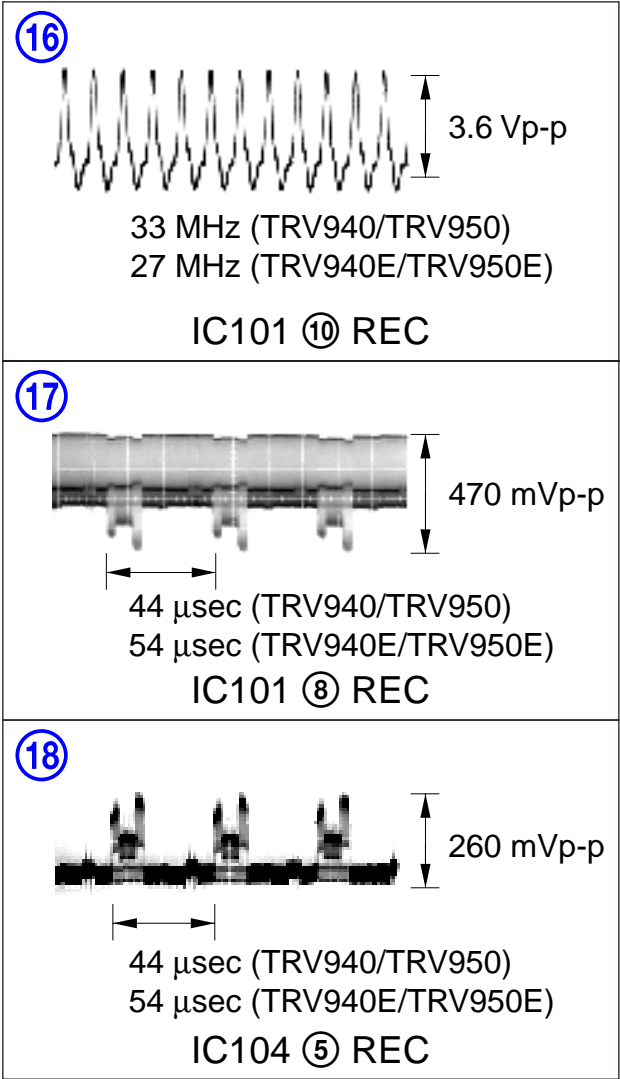
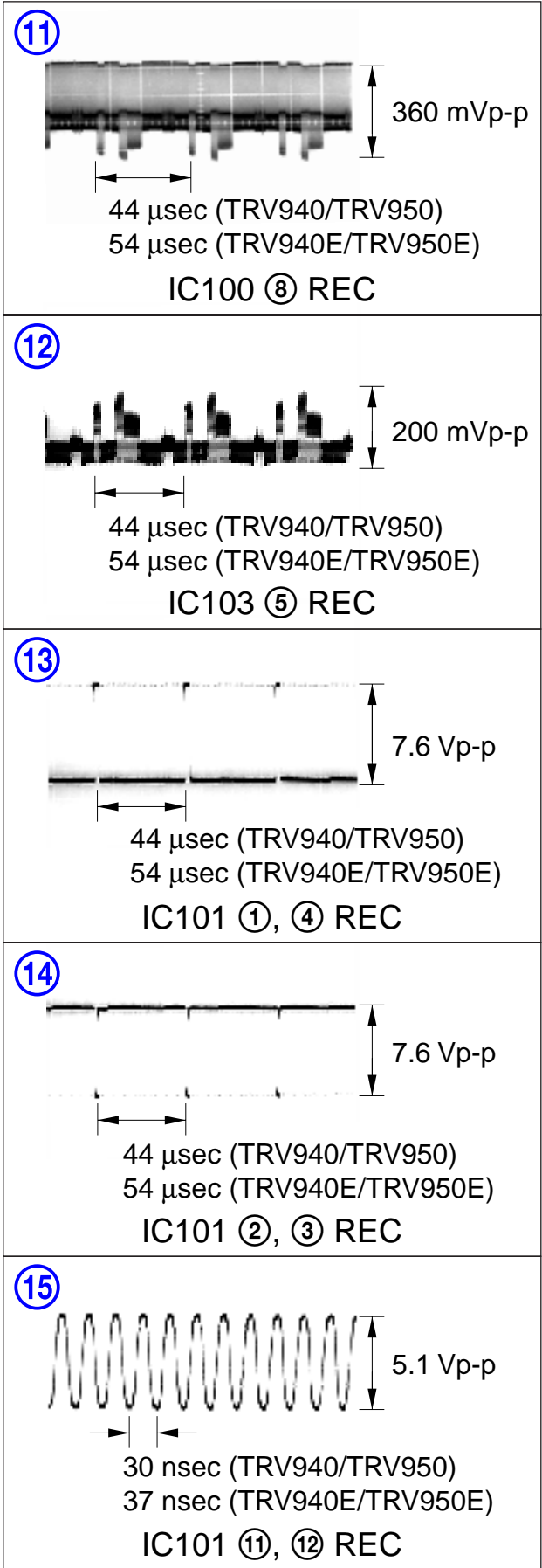
4-4. WAVEFORMS

CD-389 BOARD (1/2)





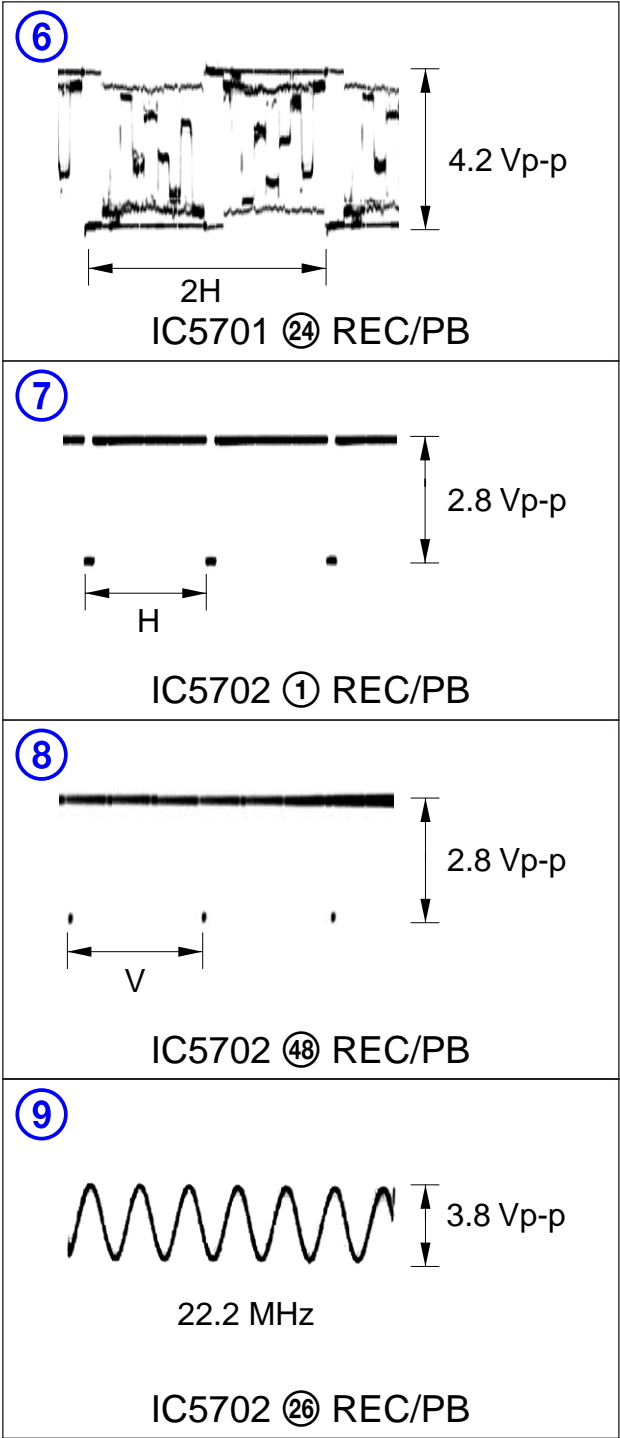
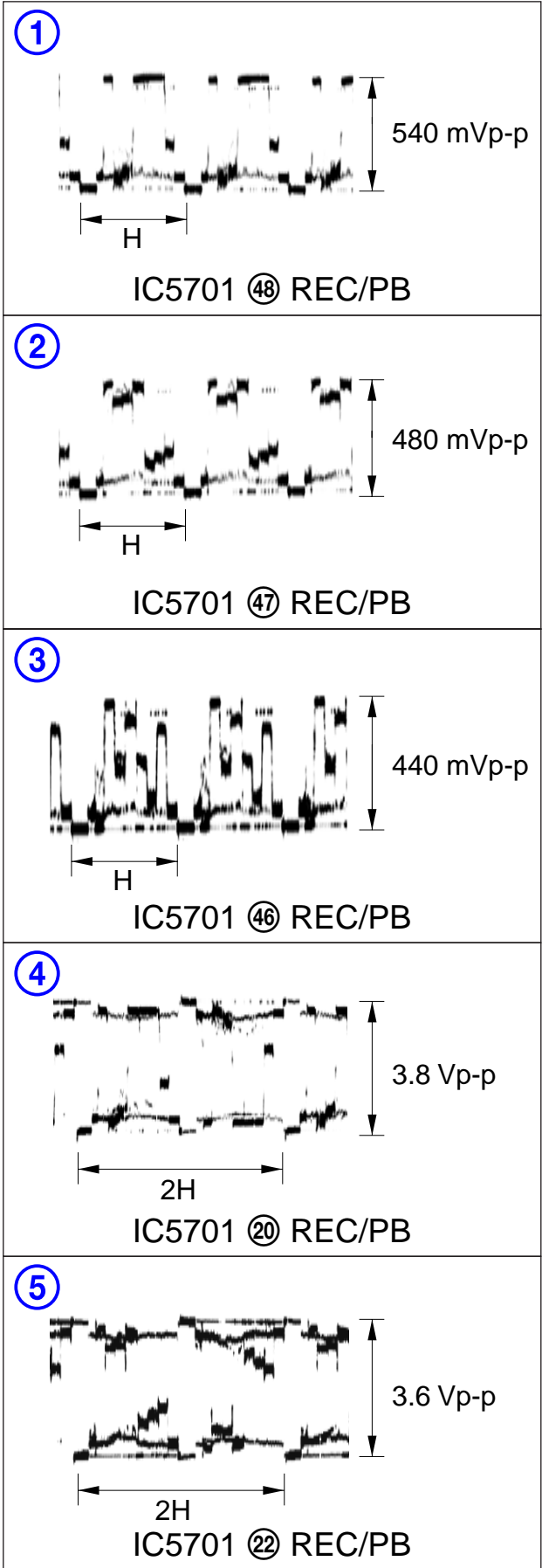
CD-389 BOARD (2/2)



Waveforms of the VC-288, DB-014 boards are not shown.
Pages 4-127 to 4-129 are not shown.



PD-168 BOARD





4-3. PRINTED WIRING BOARDS

4-5. MOUNTED PARTS LOCATION

no mark : side A

* mark : side B

CD-389 BOARD

C102	D-4
C103	D-6
C104	C-1
C105	C-1
C106	D-3
C107	C-6
C108	C-1
C109	C-4
C110	C-6
C111	C-6
C112	C-4
C113	D-3
C114	C-7
C115	C-4
C116	C-4
C117	C-6
C118	C-6
C119	D-1
C120	D-1
C121	D-1
C122	D-2
C123	D-4
C124	D-7
C125	D-2
C126	D-4
C127	D-6
C128	D-4
C129	D-6
C130	C-1
C131	D-2
* CN100	A-4
IC100	D-4
IC101	D-6
IC102	D-1
IC103	D-4
IC104	D-6
IC105	D-1
L100	C-1
L101	D-3
L102	C-6
L103	D-4
L104	D-6
L105	D-2
Q100	C-3
Q101	C-6
Q102	D-1
R100	D-4
R101	D-6
R102	C-1
R103	D-1
R104	C-3
R105	C-6
R106	D-1
R107	C-4
R108	C-7
R109	D-1
R110	C-4
R111	C-6

Mounted parts location of the VC-288, DB-014 boards are not shown.
Pages 4-132 to 4-135 are not shown.



4-3. PRINTED WIRING BOARDS

(Note: C5944 and C5945 are mounted on the board with suffix number 12)

no mark : side A
* mark : side B

SE-132 BOARD

C4001 A-2
C4002 A-3
* C4003 A-2
* C4004 A-2
* C4005 A-2
* C4006 A-2
* C4007 A-2
* C4008 A-2
C4009 B-2
C4010 A-2
C4011 B-2
C4012 A-2
C4014 A-1
* C4015 A-1
* CN4005 A-1
* IC4001 A-2
L4001 A-1
Q4001 A-1
Q4002 A-1
* R4001 A-2
* R4002 A-2
* R4003 A-2
* R4004 A-2
* R4005 A-2
* R4006 A-2
* R4007 A-1
* R4009 A-1
R4010 A-1
R4011 A-1
SE4001 A-2
SE4002 A-3

MA-410 BOARD

* C5901 A-2
* C5905 A-2
* C5906 B-2
* C5907 A-1
* C5908 A-2
* C5909 A-2
* C5910 A-2
* C5911 A-3
* C5912 A-2
* C5913 A-2
* C5914 A-2
* C5915 A-2
* C5917 B-2
* C5918 B-1
* C5920 B-2
* C5921 B-2
* C5922 B-2
* C5923 B-1
* C5924 B-2
* C5925 B-3
* C5926 B-2
* C5927 B-1
* C5928 B-1
* C5929 B-1
* C5930 B-2
* C5931 B-3
C5932 B-3
C5933 B-2
C5934 B-3
* C5935 B-2
* C5936 B-2
C5937 B-2
* C5938 B-1
* C5939 B-1
* C5940 B-1
* C5941 B-1
* C5944 A-3 (Note)
* C5945 A-3 (Note)
* CN5901 A-3
* CN5902 A-2
* CN5903 B-1
* CN5904 C-1
* CN5905 B-4
CN5906 B-3
* D5903 B-1
* FB5901 B-1
* FB5902 A-1
* IC5901 B-2
IC5902 B-4
J5901 A-1
* L5901 B-2
Q5901 B-3
Q5902 B-3
Q5903 B-3
* Q5904 B-3
* Q5905 B-3
* Q5906 B-3
* R5901 A-1
* R5902 A-4
* R5903 A-1
* R5904 A-1
* R5905 A-2
* R5906 A-2
* R5907 B-1
* R5908 A-2
* R5909 B-3
* R5910 B-3
* R5911 B-3
* R5912 B-1
R5914 B-3
R5915 B-3
* R5916 B-1
* R5917 B-2
* R5918 B-1
* R5919 B-1
* R5920 B-3
* R5921 B-2
* R5922 B-1
* R5923 B-1
* R5924 B-3
* R5925 B-3
R5926 B-4
* R5927 B-1
* R5928 B-2

R5929 B-4
R5930 B-4
R5931 B-2
R5933 B-2
R5934 B-2
R5935 B-2
R5936 B-4
R5937 B-4
* R5938 B-1
R5939 B-4
R5940 B-4
* R5941 B-1
* R5943 B-1
R5944 B-3
R5946 B-3
R5947 B-3
R5948 B-3
R5949 B-3
* R5951 B-3
* R5952 B-3
* R5953 B-3
* VDR591 A-1
* VDR592 B-1

CK-116 BOARD

BT5201 D-3
* C5201 D-3
* C5202 D-3
CN5201 E-1
* CN5202 E-1
* CN5203 E-2
* CN5204 A-6
* CN5205 C-7
* CN5206 D-1
* D5201 C-6
* D5202 F-3
* D5203 F-3
* D5204 E-5
* D5205 C-6
* D5206 C-6
* D5207 D-2
* D5208 A-5
* D5209 C-6
* R5208 C-6
* R5209 E-2
* R5210 C-6
* R5211 C-5
* R5212 C-5
* R5213 C-5
* R5214 C-5
* R5215 C-6
* R5216 E-2
* R5217 D-5
* R5218 B-4
* R5219 A-6
* R5220 E-2
* R5221 D-5
* R5222 B-5
* R5223 A-6
* R5224 E-2
* R5225 E-6
* R5226 E-4
* R5227 B-6
* R5228 A-5
* R5229 E-2
* R5230 E-6
* R5231 E-4
* R5232 C-6
* R5233 B-4
* R5234 F-2
* R5235 D-5
* R5236 B-4
* R5237 C-7
* R5238 C-5
* R5239 C-6
* R5240 C-7
* R5243 D-2
* R5244 E-2
S5116 A-5
S5201 E-7
S5202 D-6
S5203 C-5
S5204 F-4
S5205 F-4
S5206 C-5
S5207 B-4
S5208 B-5
S5209 B-6
S5210 B-7
S5211 C-6
S5212 C-7
S5213 C-6
S5214 A-7
S5215 A-6
S5217 C-4
S5218 F-1
S5219 F-2
S5220 C-7
S5221 D-5

JK-222 BOARD

* CN401 C-6
* CN402 B-3
* D401 C-3
D402 B-3
* FB401 C-3
* FB402 C-3
* FB403 A-3
* FB404 A-2
* FB405 C-3
* FB406 A-1
* FB407 A-1
* J401 B-6
* J402 C-3
* J403 A-2
* J404 A-1
* LF401 A-3
* LF402 A-3
* R401 B-6
* R402 B-5
* R403 B-6
* R404 B-3
* R406 A-2
* R407 B-3
* R408 B-1
* R409 A-2
* R410 C-6
* R411 A-2
* VDR401 B-5
* VDR402 B-6
* VDR403 B-6
* VDR404 A-2
* VDR405 C-3
* VDR406 A-2
* VDR407 A-1
* VDR408 A-1
* VDR409 A-1

PD-168 BOARD

C5701 A-4
C5702 A-4
C5703 C-3
C5704 A-3
C5705 A-3
C5706 A-3
C5707 B-3
C5708 B-3
C5709 B-3
C5710 B-4
C5711 B-4
C5712 B-4
C5713 B-3
C5714 B-3
C5715 B-4
C5716 C-3
C5717 B-2
C5718 C-2
C5719 B-4
C5720 B-3
C5721 B-3
C5722 C-3
C5723 C-1
C5724 C-1
C5726 B-2
C5727 B-2
C5801 B-4
C5802 C-2
C5803 C-2
C5805 C-3
C5807 C-1
C5808 C-3
CN5701 B-1
CN5802 A-2
CN5803 C-1
CN5804 C-4
CN5805 C-2
CN5806 A-4
D5701 C-3
D5702 C-2
IC5701 B-4
IC5702 B-2
IC5801 C-4
L5701 A-4
L5702 B-3
L5703 B-4
L5704 C-3
L5705 B-2
L5801 C-2
L5802 C-3
Q5701 B-3
Q5702 A-3
Q5801 C-1
Q5802 C-3
R5701 B-4
R5702 A-4
R5703 A-4
R5705 C-3
R5706 B-3
R5707 B-4
R5708 B-3
R5709 B-3
R5710 B-3
R5711 B-3
R5712 B-3
R5713 B-3
R5714 B-3
R5717 B-2
R5719 B-2
R5721 C-3
R5722 B-3
R5727 B-2
R5732 B-2
R5736 B-2
R5737 C-2
R5801 B-4
R5802 B-4
R5803 C-3
R5804 C-3
R5805 A-4

**4-3. PRINTED WIRING BOARDS**

no mark : side A
* mark : side B

FP-504 FLEXIBLE BOARD

C601	E-5
D601	B-1
D602	E-6
D603	E-6
D605	B-1
D606	E-6
D607	D-2
D608	E-3
D609	B-4
D610	B-3
F601	C-4
IC601	D-6
PH601	E-2
PH602	E-3
Q601	C-1
R601	C-2
R602	B-1
R603	C-4
R604	B-1
R605	E-5
R606	C-1
R607	C-1
S601	B-2
S602	B-3
S603	B-1
S604	B-4



DCR-TRV940/TRV940E/TRV950/TRV950E

SECTION 5

REPAIR PARTS LIST

5-1. EXPLODED VIEWS

NOTE:

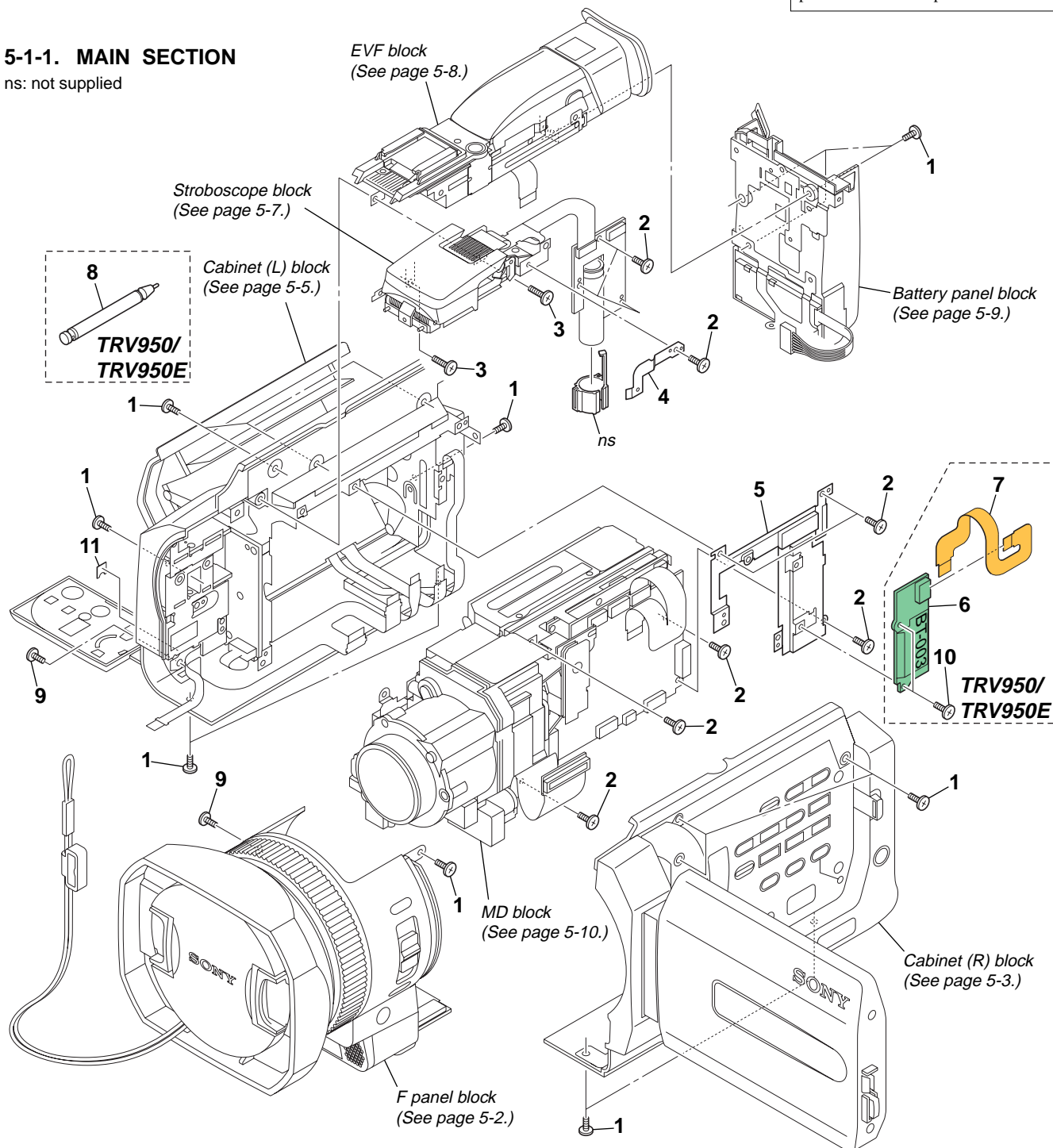
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories are given in the last of the electrical parts list.

The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-1-1. MAIN SECTION

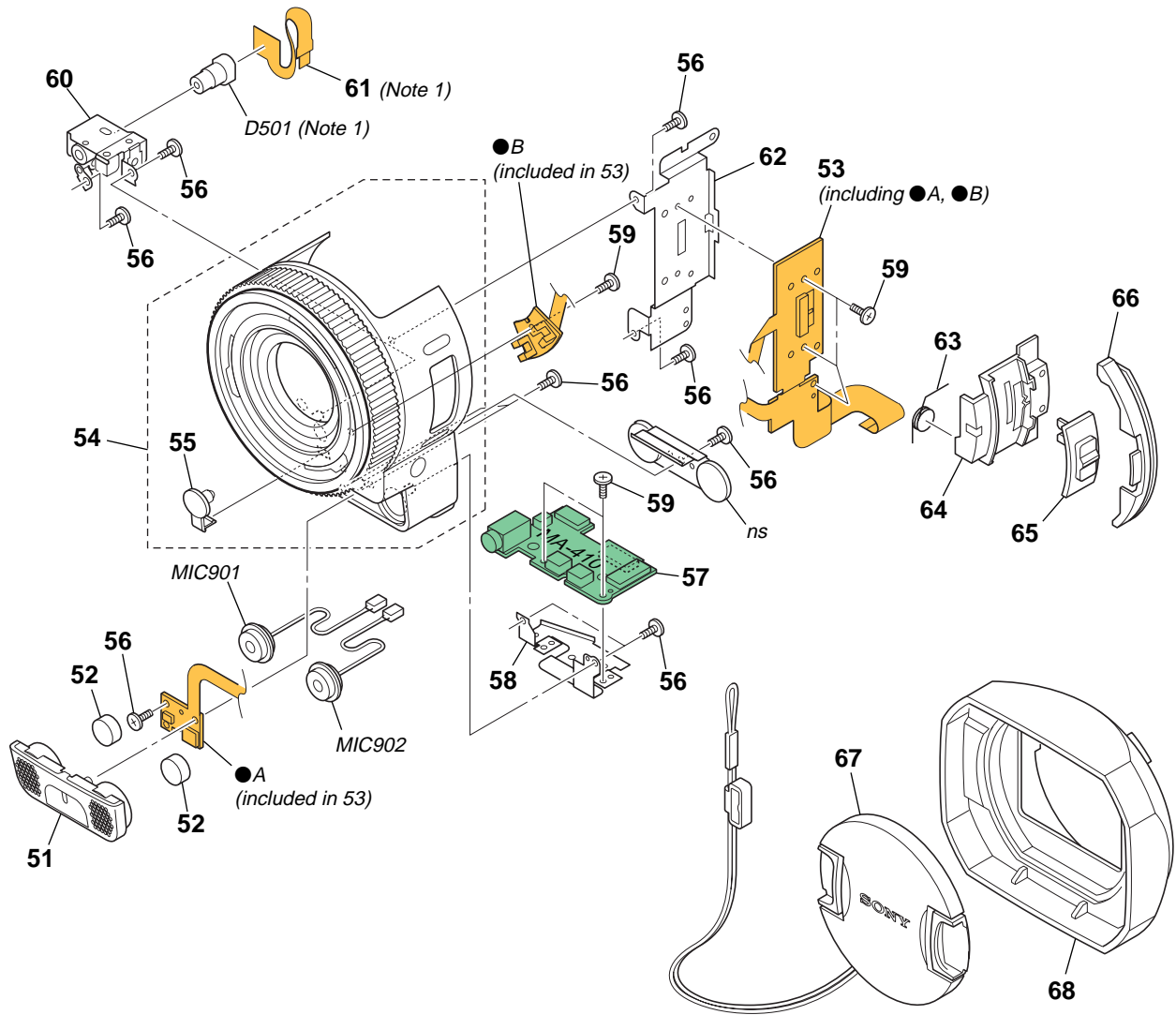
ns: not supplied



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	3-989-735-01	SCREW (M1.7), LOCK ACE, P2	7	1-685-290-11	FP-491 FLEXIBLE BOARD (TRV950/TRV950E)
2	4-974-725-01	SCREW (M1.7X2.5), P	8	3-073-941-01	STYLUS (TRV950/TRV950E)
3	3-713-791-31	SCREW (M1.7X6), TAPPING, P2	9	3-055-573-21	SCREW (M1.7), LOCK ACE, P2
4	3-076-240-01	PLATE (B), MF KNOB RETAINER	10	3-389-523-28	SCREW (LOCK ACE)
5	X-3952-686-1	FRAME ASSY, ST	11	3-076-834-01	SHEET, AF BLIND
6	A-7067-302-A	BT-003 BOARD, COMPLETE (TRV950/TRV950E)			

5-1-2. F PANEL BLOCK

ns: not supplied



(Note 1) Be sure to read "SERVICE NOTE" on page 1-3 when replacing the laser unit (D501) and the FP-500 flexible board.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

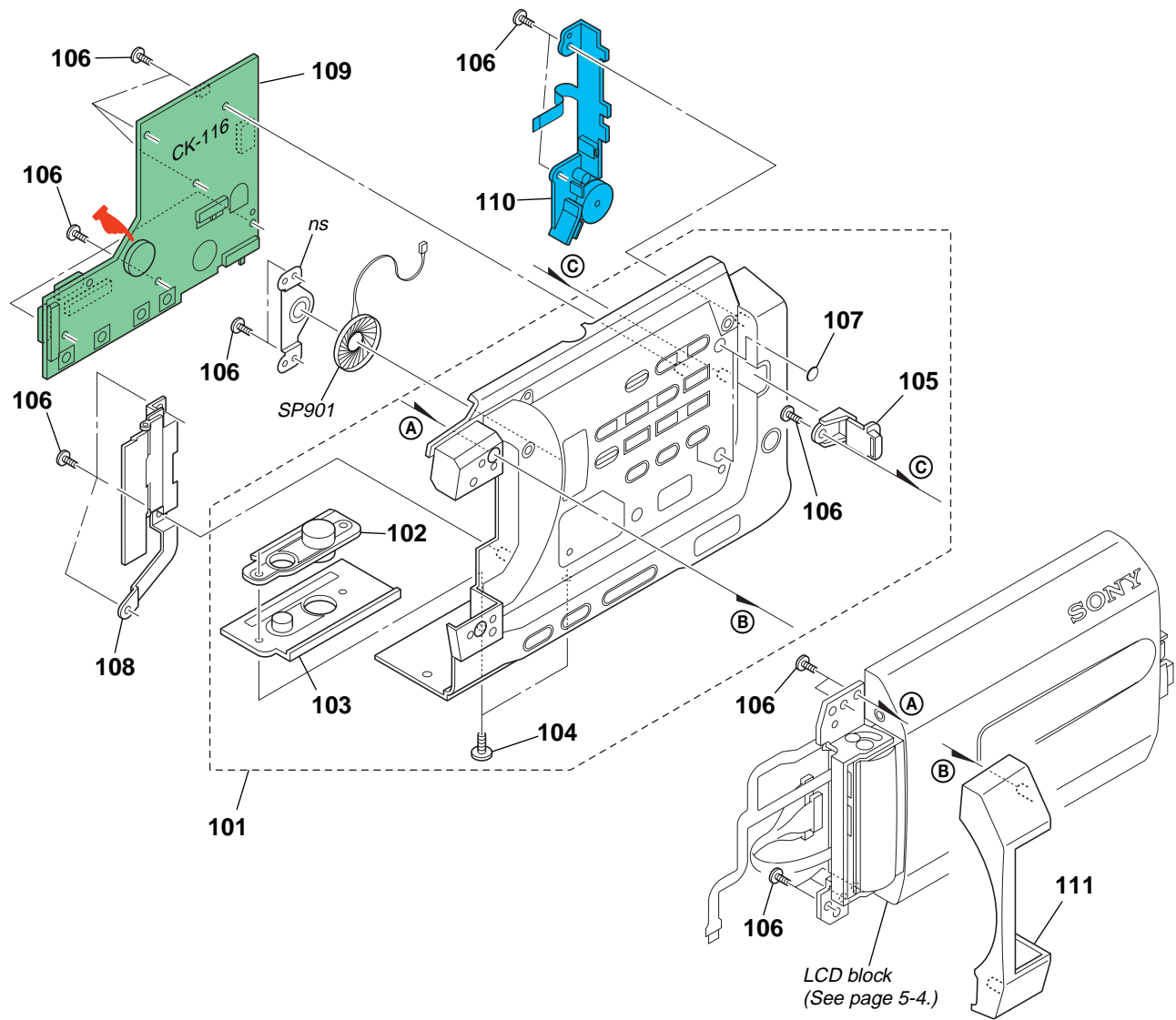
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


Ref. No.	Part No.	Description
51	X-3952-617-1	GRILLE ASSY, MICROPHONE
52	3-076-349-01	SHEET, GRILLE
53	A-7078-341-A	FP-504 FLEXIBLE BOARD, COMPLETE
54	X-3952-621-1	PANEL ASSY, FRONT
55	3-076-276-01	COVER, MICROPHONE JACK
56	3-713-791-01	SCREW (M1.7X4), TAPPING, P2
57	A-7078-336-A	MA-410 BOARD, COMPLETE
58	3-076-348-01	BRACKET, MA
59	4-974-725-01	SCREW (M1.7X2.5), P
60	X-3952-608-1	BRACKET ASSY, AF LASER
61	1-685-298-11	FP-500 FLEXIBLE BOARD (Note 1)

Ref. No.	Part No.	Description
62	3-076-354-01	PLATE (A), MF KNOB RETAINER
63	3-076-353-01	SPRING, MF KNOB RETURN
64	3-076-351-01	RETAINER, MF KNOB
65	3-076-350-01	KNOB, MF
66	3-076-352-01	PLATE, ORNAMENTAL
67	X-3952-595-1	CAP ASSY, LENS
68	X-3952-594-1	HOOD ASSY
Δ D501	1-804-531-11	LASER UNIT (Note 1)
MIC901	1-542-312-11	MICROPHONE (L-side)
MIC902	1-542-312-11	MICROPHONE (R-side)

5-1-3. CABINET (R) BLOCK

ns: not supplied



 : BT5201 (BATTERY, LITHIUM SECONDARY)
Board on the mount position. (See page 4-105.)

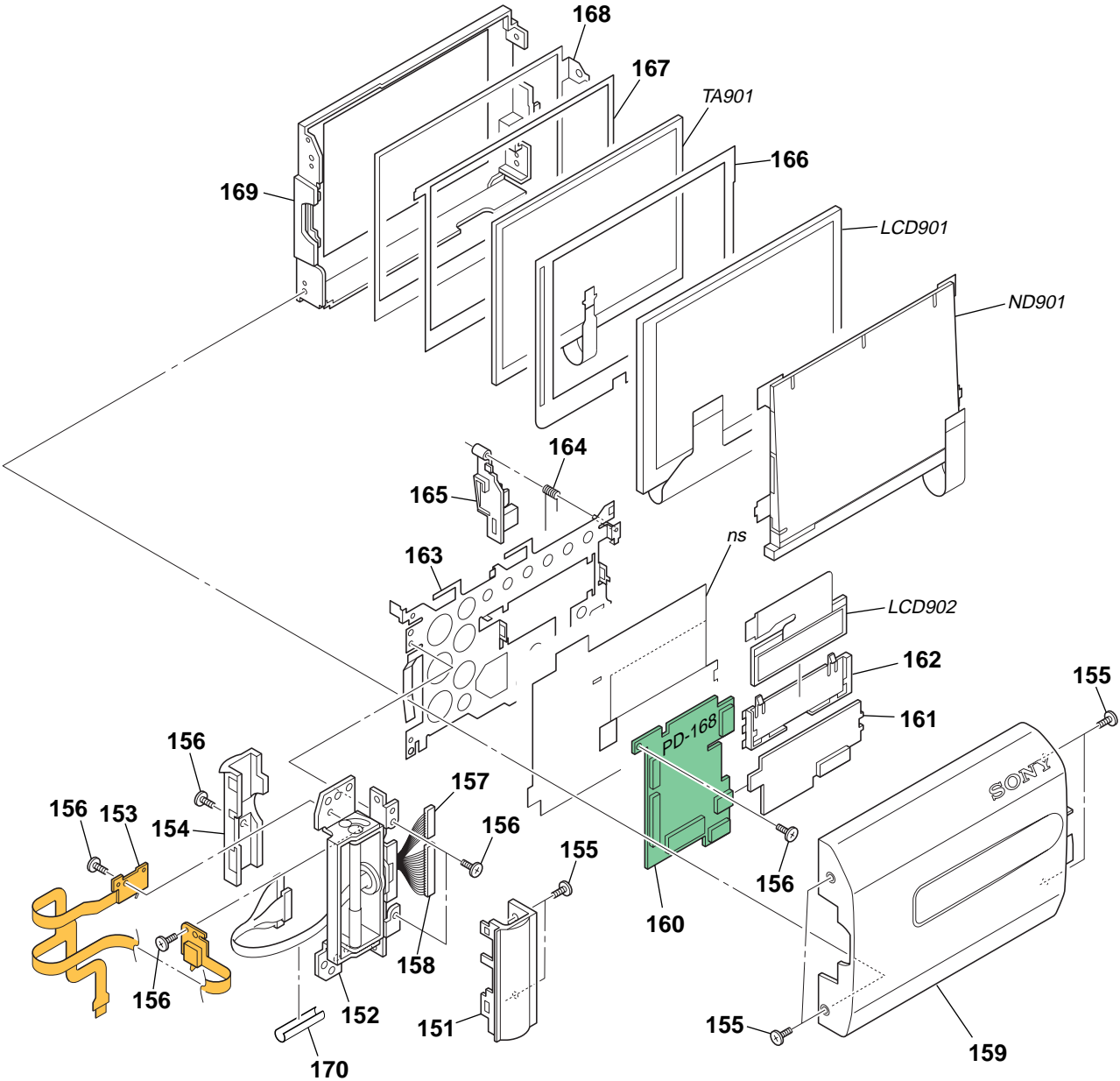
CAUTION
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

Ref. No.	Part No.	Description
101	X-3952-620-1	CABINET (R) ASSY (TRV940/TRV950)
101	X-3952-643-1	CABINET (R) ASSY (TRV940E/TRV950E)
102	3-051-840-01	SCREW, TRIPOD
103	3-076-305-01	BASE, TRIPOD TABLE
104	3-958-217-01	SCREW (M2)
105	3-076-299-01	CLAW, PANEL LOCK
106	3-989-735-51	SCREW (M1.7), LOCK ACE, P2

Ref. No.	Part No.	Description
107	3-062-194-01	SPACER, LOCK
108	X-3952-609-1	LID ASSY, HINGE BLIND
109	A-7078-338-A	CK-116 BOARD, COMPLETE
110	1-477-338-11	SWITCH BLOCK, CONTROL (KP1870)
111	3-076-344-01	CABINET (HINGE)
SP901	1-529-857-21	SPEAKER (1.6 cm)

5-1-4. LCD BLOCK

ns: not supplied



The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

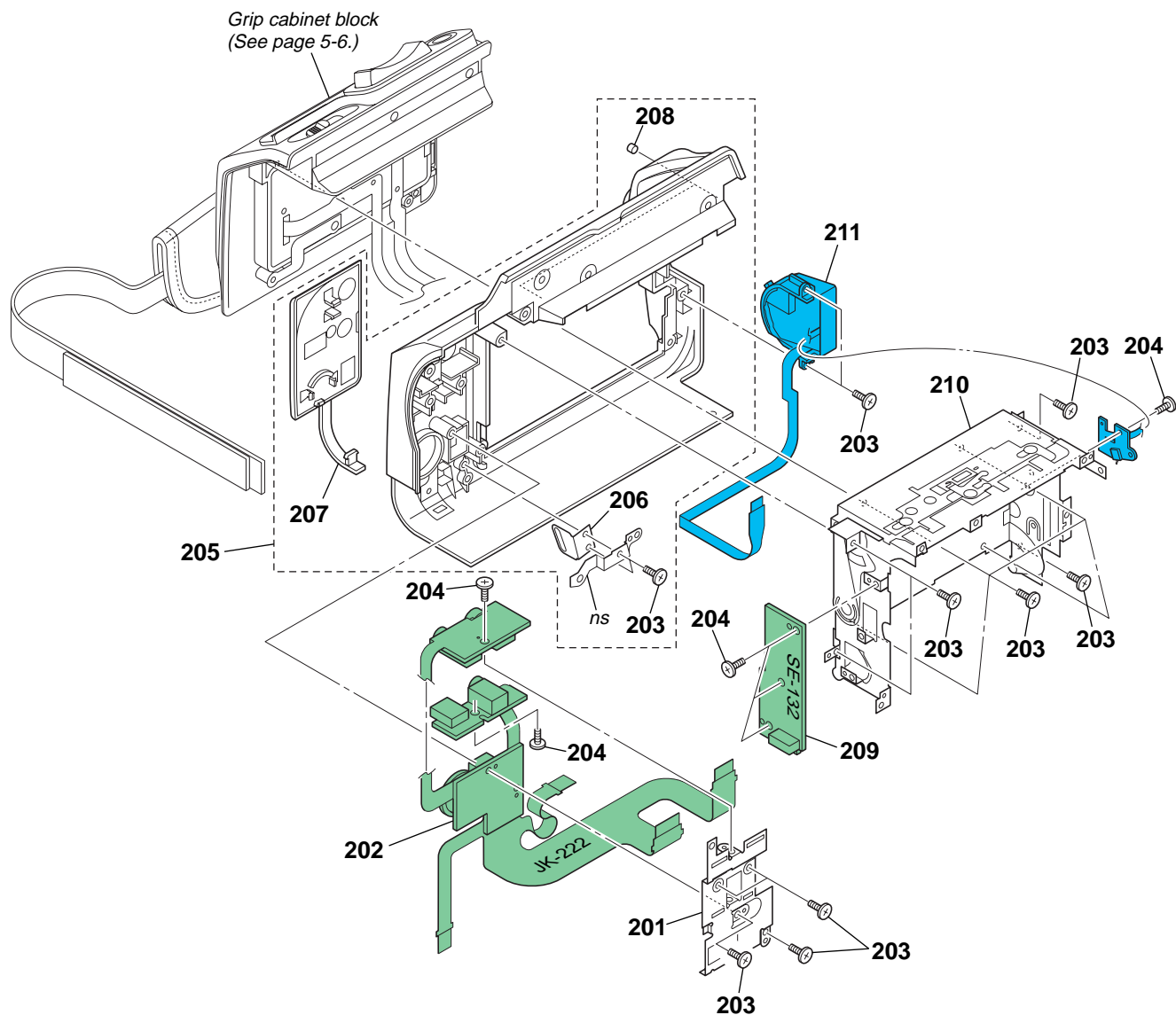
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description
151	3-076-448-01	COVER (FRONT), HINGE
152	X-3952-604-1	HINGE ASSY
153	A-7078-342-A	FP-495 FLEXIBLE BOARD, COMPLETE
154	3-076-447-01	COVER (REAR), HINGE
155	3-989-735-51	SCREW (M1.7), LOCK ACE, P2
156	4-974-725-01	SCREW (M1.7X2.5), P
157	1-961-814-11	HARNESS (PC-087)
158	1-961-815-11	HARNESS (PC-088)
159	X-3952-626-1	P CABINET (C) ASSY (TRV950)
159	X-3952-642-1	P CABINET (C) ASSY (TRV950E)
159	X-3952-646-1	P CABINET (C) ASSY (TRV940E)
159	X-3952-661-1	P CABINET (C) ASSY (TRV940)
160	A-7078-337-A	PD-168 BOARD, COMPLETE
Δ 161	1-477-187-11	TRANSFORMER UNIT, INVERTER
162	3-055-289-01	HOLDER, LCD

Ref. No.	Part No.	Description
163	X-3952-612-1	FRAME ASSY, P
164	3-076-453-01	SPRING (P), TORSION COIL
165	3-076-449-01	BUTTON, OPEN
166	3-076-451-01	CUSHION (L)
167	3-076-450-01	CUSHION (C)
168	3-076-452-01	PLATE (P), GROUND
169	3-076-446-01	CABINET (M), P
170	3-076-631-01	TAPE (H)
LCD901	1-804-599-21	INDICATOR MODULE LIQUID CRYSTAL (SERVICE)
LCD902	A-7096-726-A	INDICATION LCD BLOCK ASSY (CHARACTER DISPLAY) (including FP-182 FLEXIBLE BOARD)
Δ ND901	1-518-797-11	TUBE, FLUORESCENT, COLD CATHODE
TA901	1-477-189-11	PANEL, TOUCH

5-1-5. CABINET (L) BLOCK

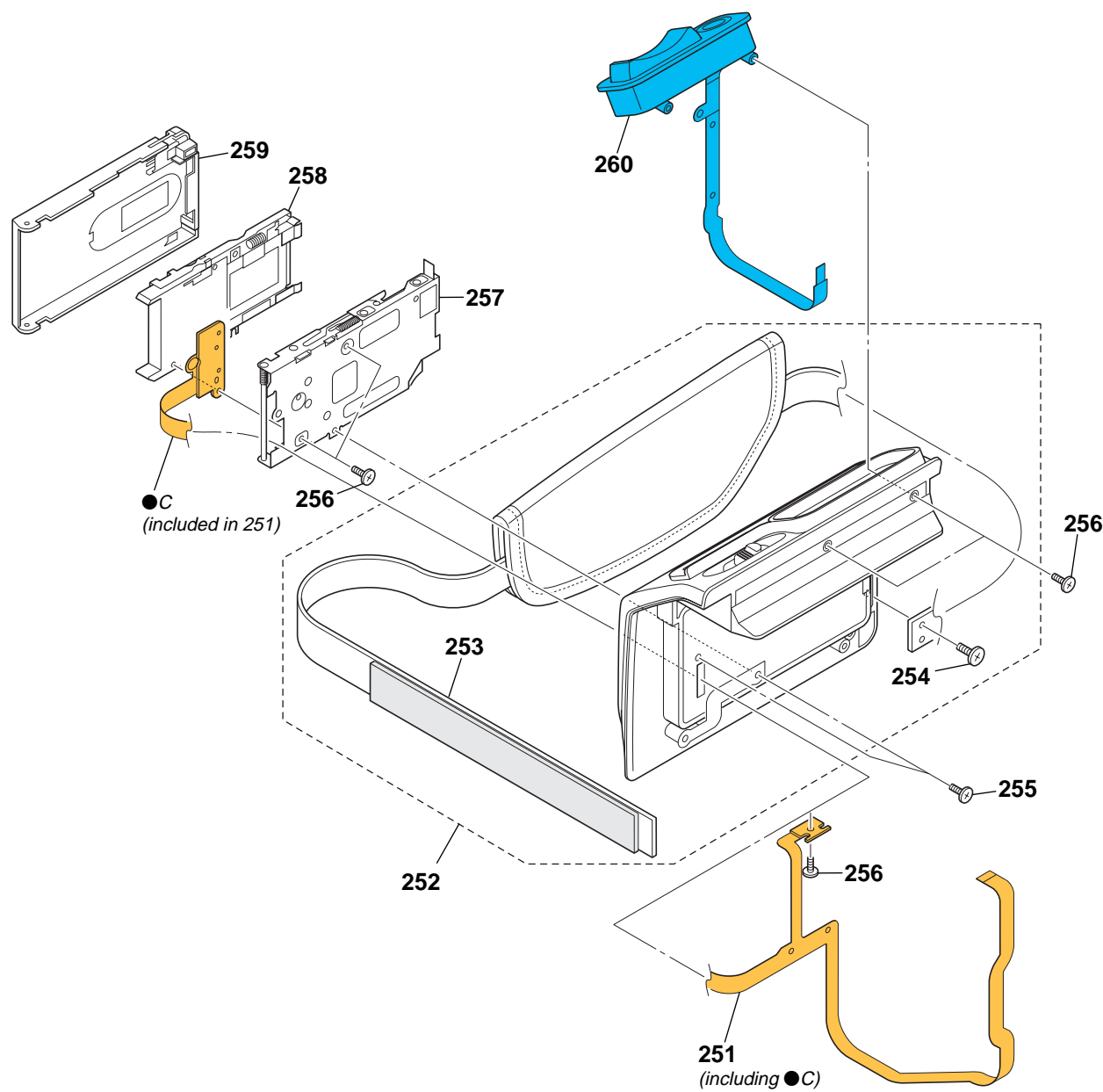
ns: not supplied



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
201	3-076-343-01	BRACKET, JK
202	A-7078-332-A	JK-222 BOARD, COMPLETE
203	3-713-791-01	SCREW (M1.7X4), TAPPING, P2
204	4-974-725-01	SCREW (M1.7X2.5), P
205	X-3952-622-1	CABINET (L) ASSY (TRV940/TRV950)
205	X-3952-641-1	CABINET (L) ASSY (TRV940E/TRV950E)
206	3-076-309-01	BRACKET (FRONT), GRIP BELT

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
207	X-3952-618-1	COVER ASSY, TERMINAL
208	3-052-521-01	CUSHION (2), PANEL
209	A-7078-339-A	SE-132 BOARD, COMPLETE
210	X-3952-593-1	CS FRAME ASSY
211	1-477-337-22	SWITCH BLOCK, CONTROL (PS1870) (TRV950/TRV950E)
211	1-477-337-32	SWITCH BLOCK, CONTROL (PS1870) (TRV940/TRV940E)

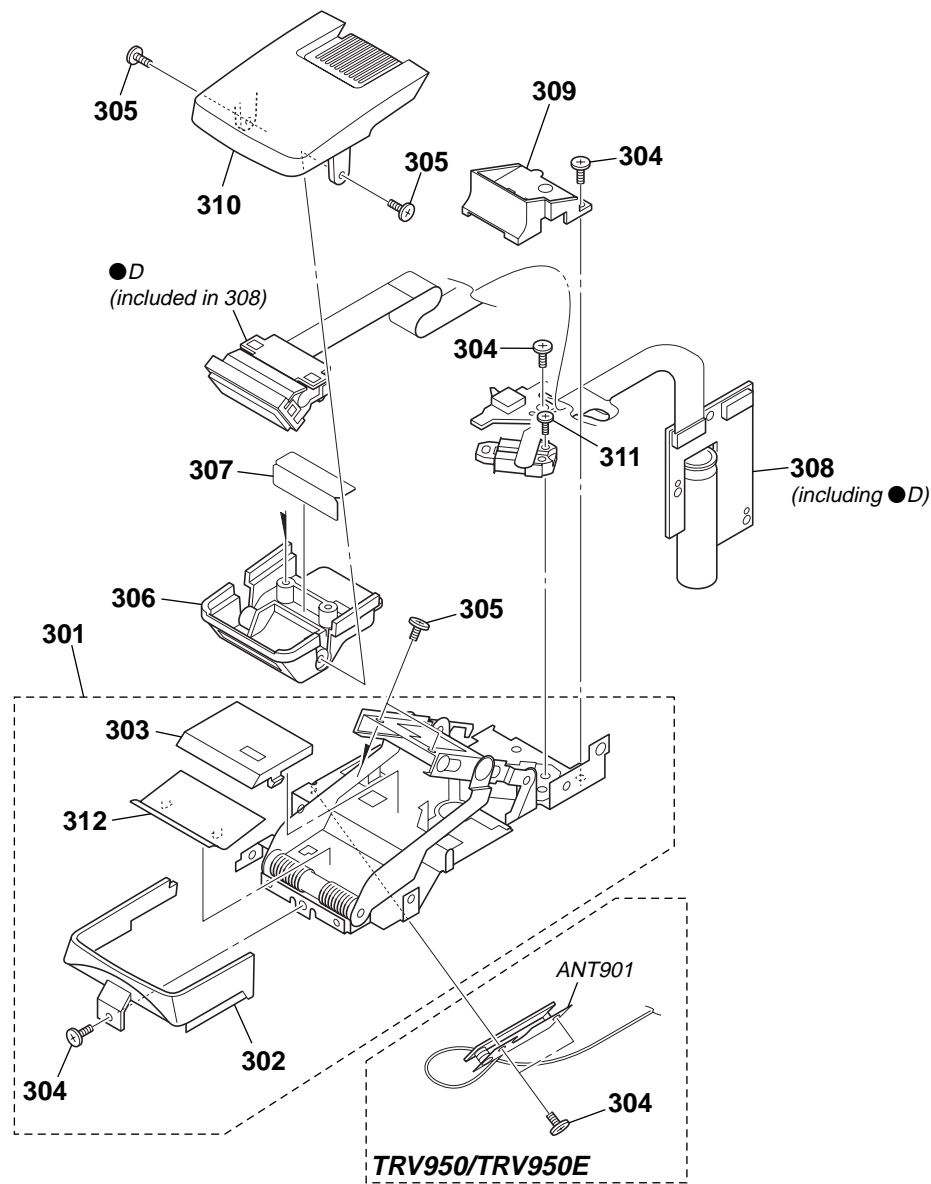
5-1-6. GRIP CABINET BLOCK



Ref. No.	Part No.	Description
251	1-685-299-11	FP-503 FLEXIBLE BOARD (TRV940/TRV940E)
251	1-685-299-21	FP-503 FLEXIBLE BOARD (TRV950/TRV950E)
252	X-3952-623-1	CABINET ASSY, GRIP (TRV950/TRV950E)
252	X-3952-660-1	CABINET ASSY, GRIP (TRV940/TRV940E)
253	3-076-322-01	BELT, GRIP (TRV950/TRV950E)
253	3-076-322-11	BELT, GRIP (TRV940/TRV940E)
254	3-679-362-11	SCREW (M2X4)

Ref. No.	Part No.	Description
255	4-974-725-01	SCREW (M1.7X2.5), P
256	3-713-791-01	SCREW (M1.7X4), TAPPING, P2
257	X-3952-598-1	CHASSIS ASSY, MS
258	1-785-593-31	CONNECTOR, MEMORY STICK
259	X-3952-624-1	CABINET ASSY, MS
260	1-477-339-21	SWITCH BLOCK, CONTROL (CF1870)

5-1-7. STROBOSCOPE BLOCK

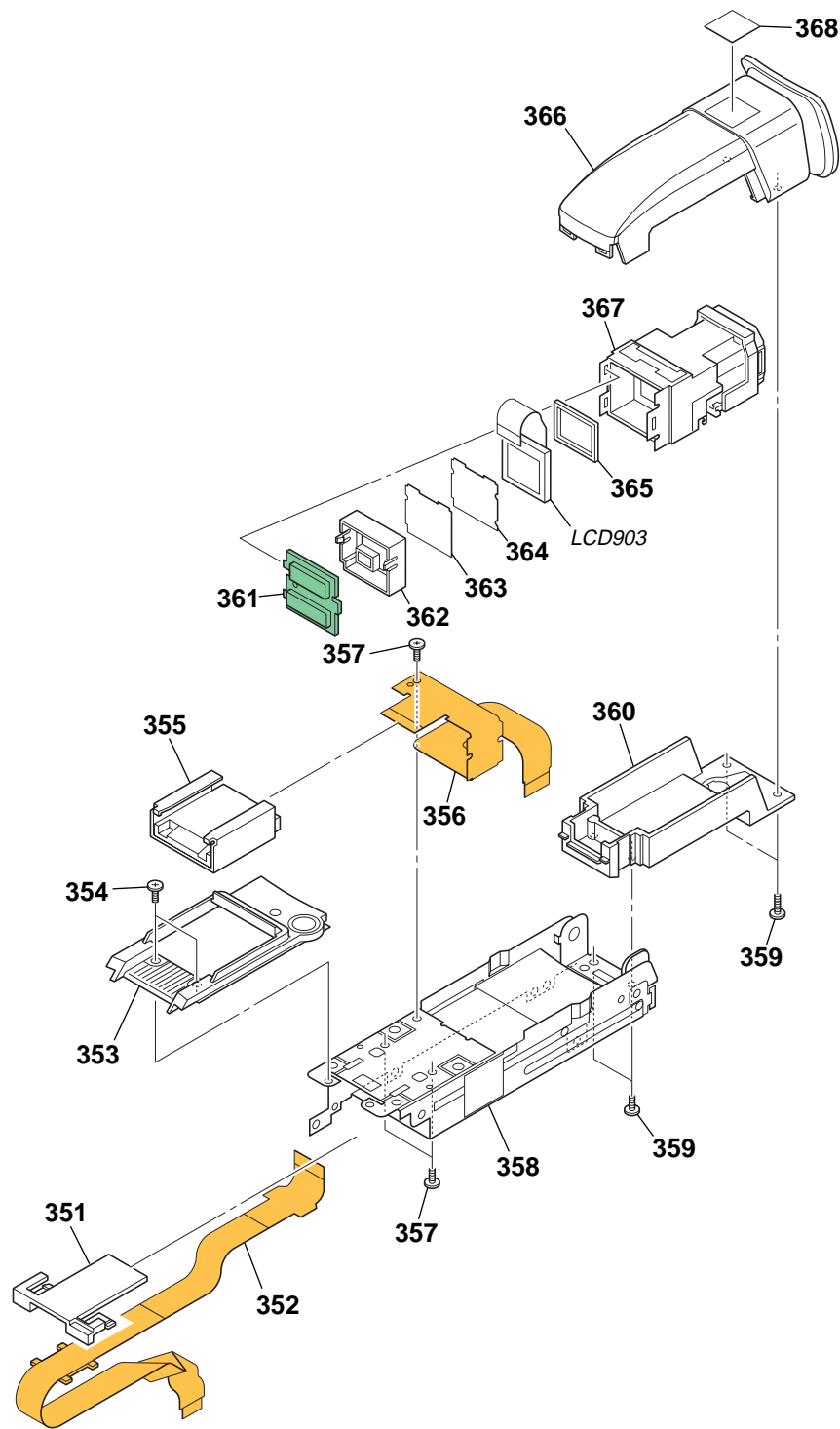


The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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Ref. No.	Part No.	Description
301	X-3952-601-1	BASE ASSY, ST
302	3-076-313-01	ST CABINET (FRONT)
303	3-076-340-01	COVER (LOWER), ST
304	3-989-735-81	SCREW (M1.7), LOCK ACE, P2
305	3-713-791-01	SCREW (M1.7X4), TAPPING, P2
306	X-3952-663-1	CABINET (LOWER) ASSY, ST
307	3-076-854-01	SHEET, INSULATING, ST

Ref. No.	Part No.	Description
▲ 308	1-477-398-11	FLASH UNIT
309	3-076-342-01	COVER (UPPER), ST
310	X-3952-670-1	CABINET (UPPER) ASSY, ST
311	3-389-523-28	SCREW (LOCK ACE)
312	3-076-341-01	COVER (FRONT), ST
ANT901	1-754-210-21	ANTENNA (2.4Ghz) (TRV950/TRV950E)

5-1-8. EVF BLOCK

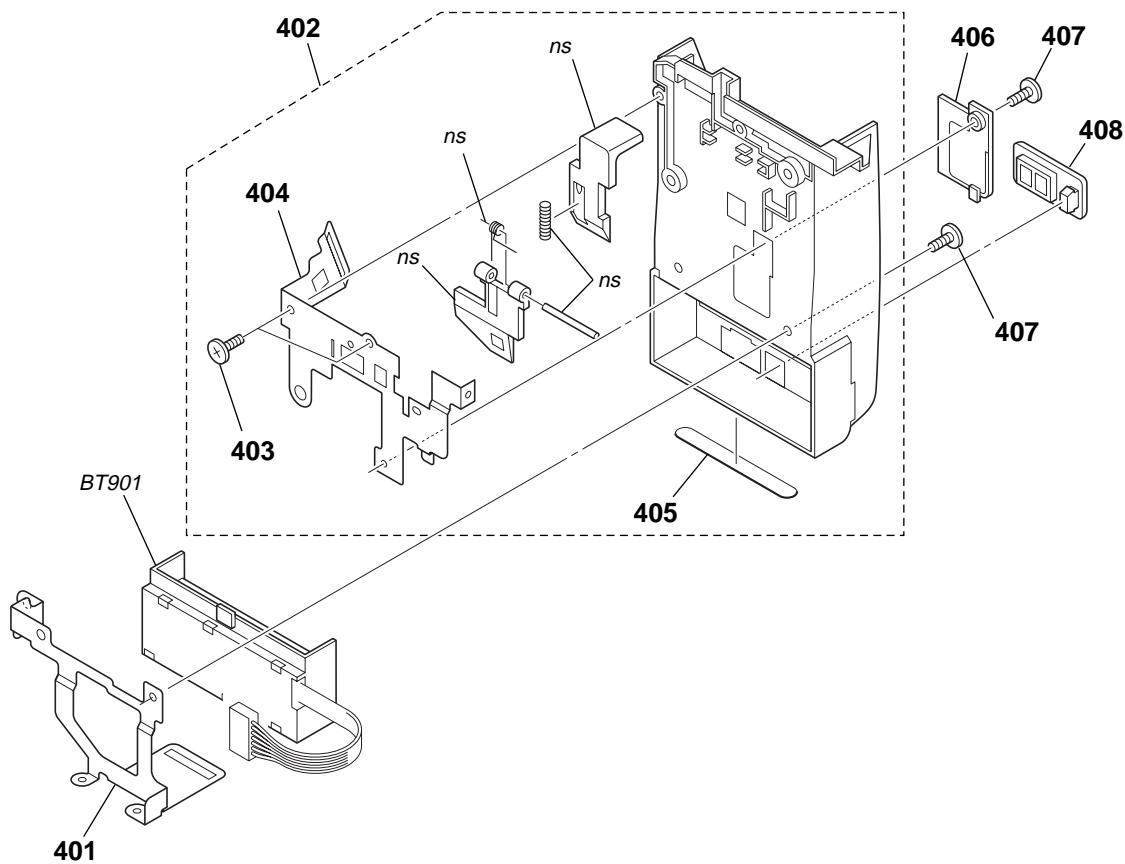


Ref. No.	Part No.	Description
351	3-076-345-01	HOLDER, VF FLEXIBLE
352	1-685-301-11	FP-547 FLEXIBLE BOARD
353	X-3952-625-1	CABINET ASSY, TOP (TRV950/TRV950E)
353	X-3952-645-1	CABINET ASSY, TOP (TRV940/TRV940E)
354	3-989-735-81	SCREW (M1.7), LOCK ACE, P2
355	1-815-124-11	CONNECTOR, EXTERNAL (HOT SHOE)
356	A-7078-344-A	FP-497 FLEXIBLE BOARD, COMPLETE
357	4-974-725-01	SCREW (M1.7X2.5), P
358	X-3952-600-1	BASE ASSY, EVF
359	3-713-791-31	SCREW (M1.7X6), TAPPING, P2

Ref. No.	Part No.	Description
360	X-3952-614-1	CABINET (LOWER) ASSY, VF
361	A-7078-333-A	LB-080 BOARD, COMPLETE
362	3-072-214-01	GUIDE (20), LAMP
363	3-072-211-01	ILLUMINATOR
364	3-072-210-01	SHEET, PRISM
365	3-059-734-01	CUSHION (1), LCD
366	X-3952-613-1	CABINET (UPPER) ASSY, VF
367	X-3952-616-1	LENS ASSY, VF
368	3-074-434-01	COVER VF LABEL (PR)
LCD903	8-753-028-54	LCX033AN-1 (SERVICE)

5-1-9. BATTERY PANEL BLOCK

ns: not supplied

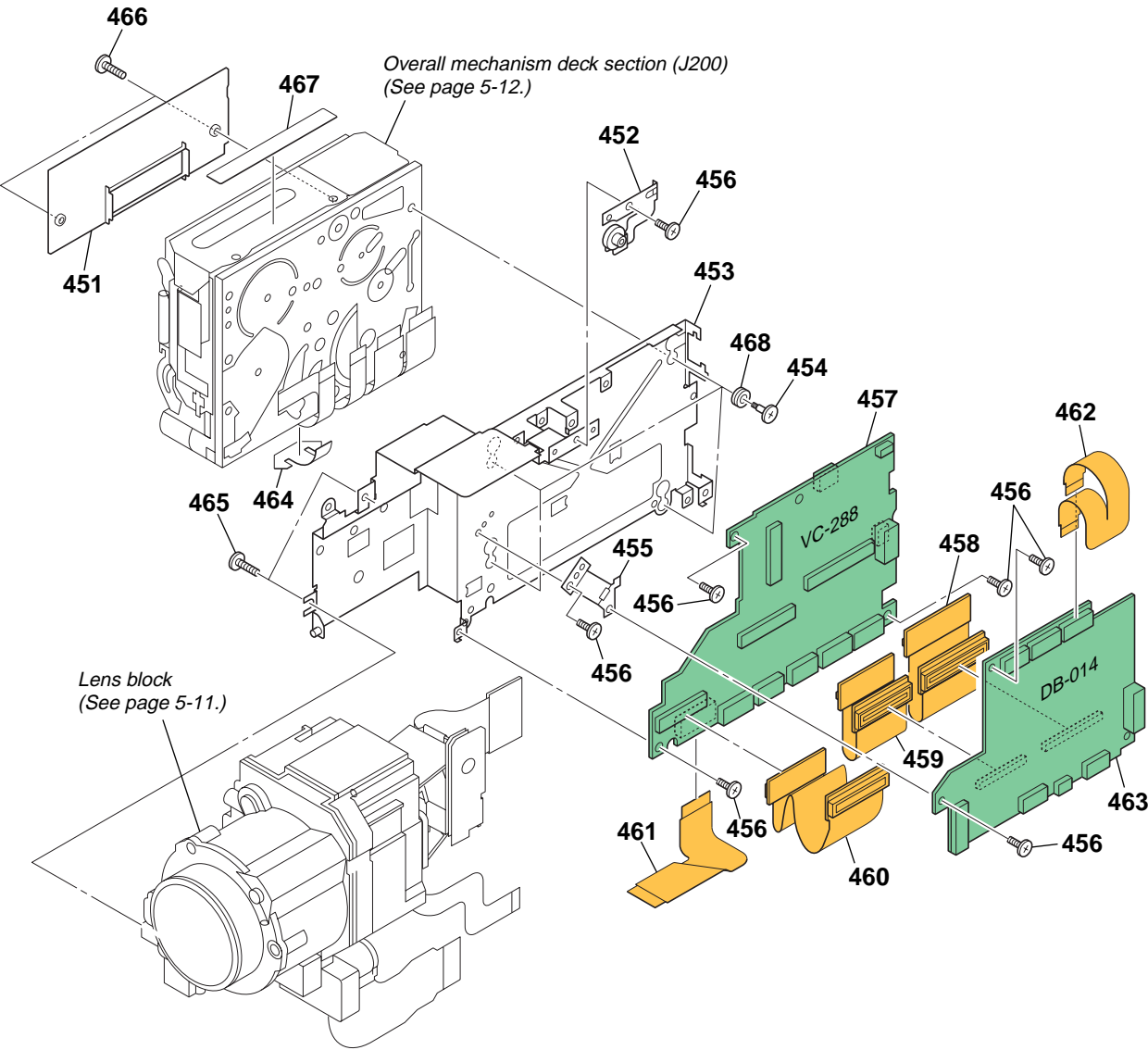


Ref. No.	Part No.	Description
401	3-076-245-01	BRACKET (LOWER), STRAP
402	X-3952-603-1	PANEL ASSY, BATTERY
403	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2
404	3-076-335-01	BRACKET (UPPER), STRAP
405	3-076-337-01	FOOT, RUBBER

Ref. No.	Part No.	Description
406	3-076-239-01	LID, CPC
407	3-989-735-81	SCREW (M1.7), LOCK ACE, P2
408	3-065-290-11	LID, JACK
BT901	1-694-772-11	TERMINAL BOARD, BATTERY

5-1-10. MD BLOCK

ns: not supplied

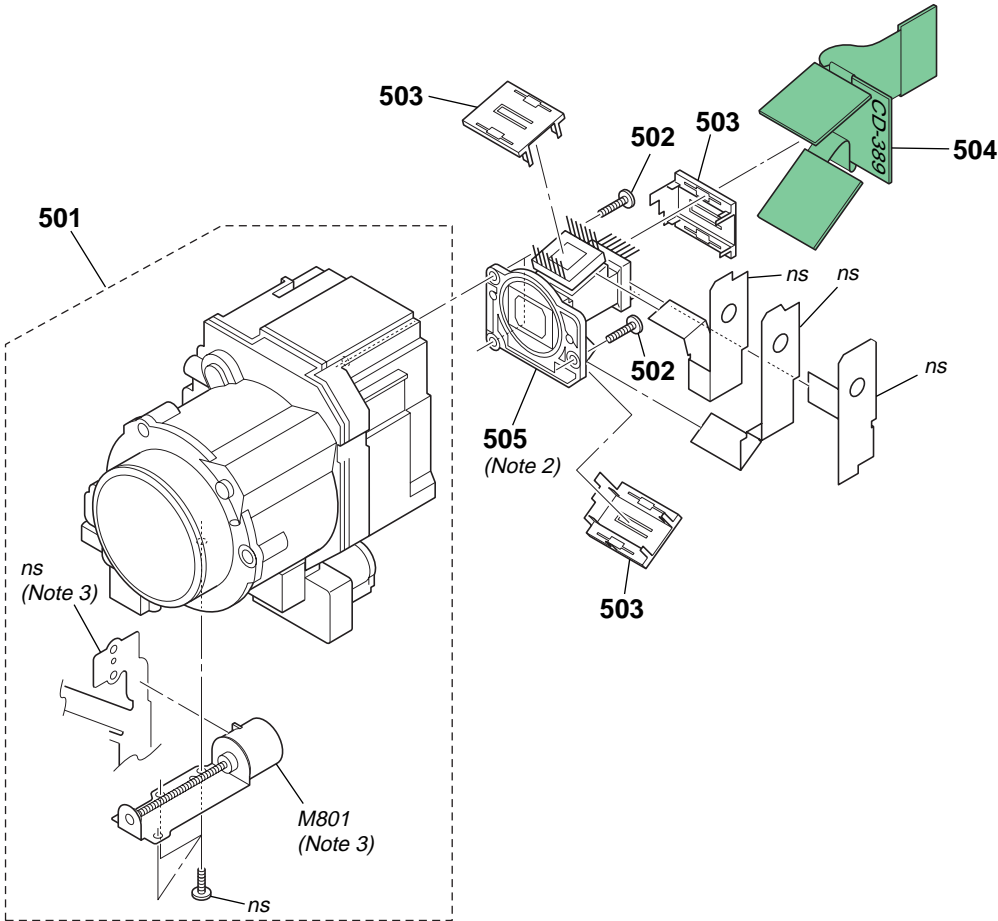


Ref. No.	Part No.	Description
451	3-059-722-01	COVER, CASSETTE COMPARTMENT
452	X-3952-662-1	BRACKET ASSY, HEAT SINK
453	X-3952-599-1	FRAME ASSY, MD
454	3-059-718-01	SCREW (M1.4X1.5)
455	3-076-338-01	BRACKET, DB
456	4-974-725-01	SCREW (M1.7X2.5), P
457	A-7078-347-A	VC-288 BOARD, COMPLETE (SERVICE) (TRV950)
457	A-7078-362-A	VC-288 BOARD, COMPLETE (SERVICE) (TRV950E)
457	A-7078-364-A	VC-288 BOARD, COMPLETE (SERVICE) (TRV940E)
457	A-7078-366-A	VC-288 BOARD, COMPLETE (SERVICE) (TRV940)
458	A-7078-345-A	FP-498 FLEXIBLE BOARD, COMPLETE

Ref. No.	Part No.	Description
459	A-7078-346-A	FP-499 FLEXIBLE BOARD, COMPLETE
460	A-7078-343-A	FP-496 FLEXIBLE BOARD, COMPLETE
461	1-685-292-11	FP-494 FLEXIBLE BOARD
462	1-685-291-11	FP-493 FLEXIBLE BOARD
463	A-7078-348-A	DB-014 BOARD, COMPLETE (SERVICE) (TRV940/TRV950)
463	A-7078-363-A	DB-014 BOARD, COMPLETE (SERVICE) (TRV940E/TRV950E)
464	3-070-940-01	TAPE (3), DF
465	3-948-339-01	SCREW, TAPPING
466	3-989-735-01	SCREW (M1.7), LOCK ACE, P2
467	3-059-725-01	LABEL, LS
468	3-059-809-01	DAMPER, MD

5-1-11. LENS BLOCK

ns: not supplied



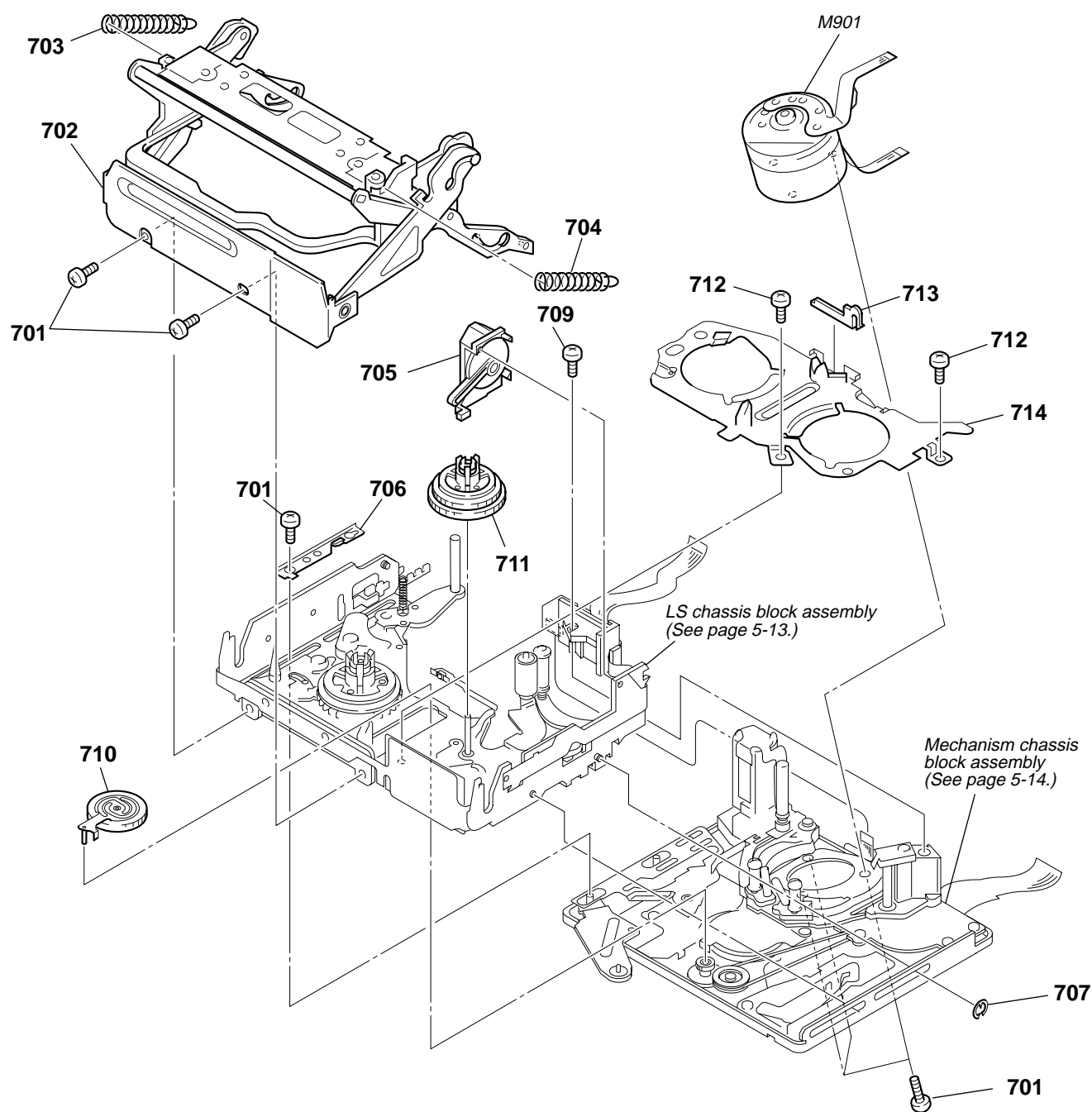
(Note 2) Be sure to read “Precuations for Replacement of CCD Imager” on page 4-12 when changing the prism block.

(Note 3) Flexible board of video lens is not supplied.
Please be careful not to break the flexible board when you change the motor unit.

Ref. No.	Part No.	Description
501	1-758-757-11	LENS, VIDEO (B144A)
502	3-713-791-61	SCREW (M1.7X7), TAPPING, P2
503	3-076-331-01	COVER (A), CCD
504	A-7078-335-A	CD-389 BOARD, COMPLETE

Ref. No.	Part No.	Description
505	A-7012-866-A	PRISM BLOCK (ZGDSY2) (SERVICE) (including CCD IMAGER (IC100, 101, 105)) (Note 2)
M801	3-709-679-01	MOTOR, ZOOM (Note 3)

5-1-12. OVERALL MECHANISM DECK SECTION (J200)

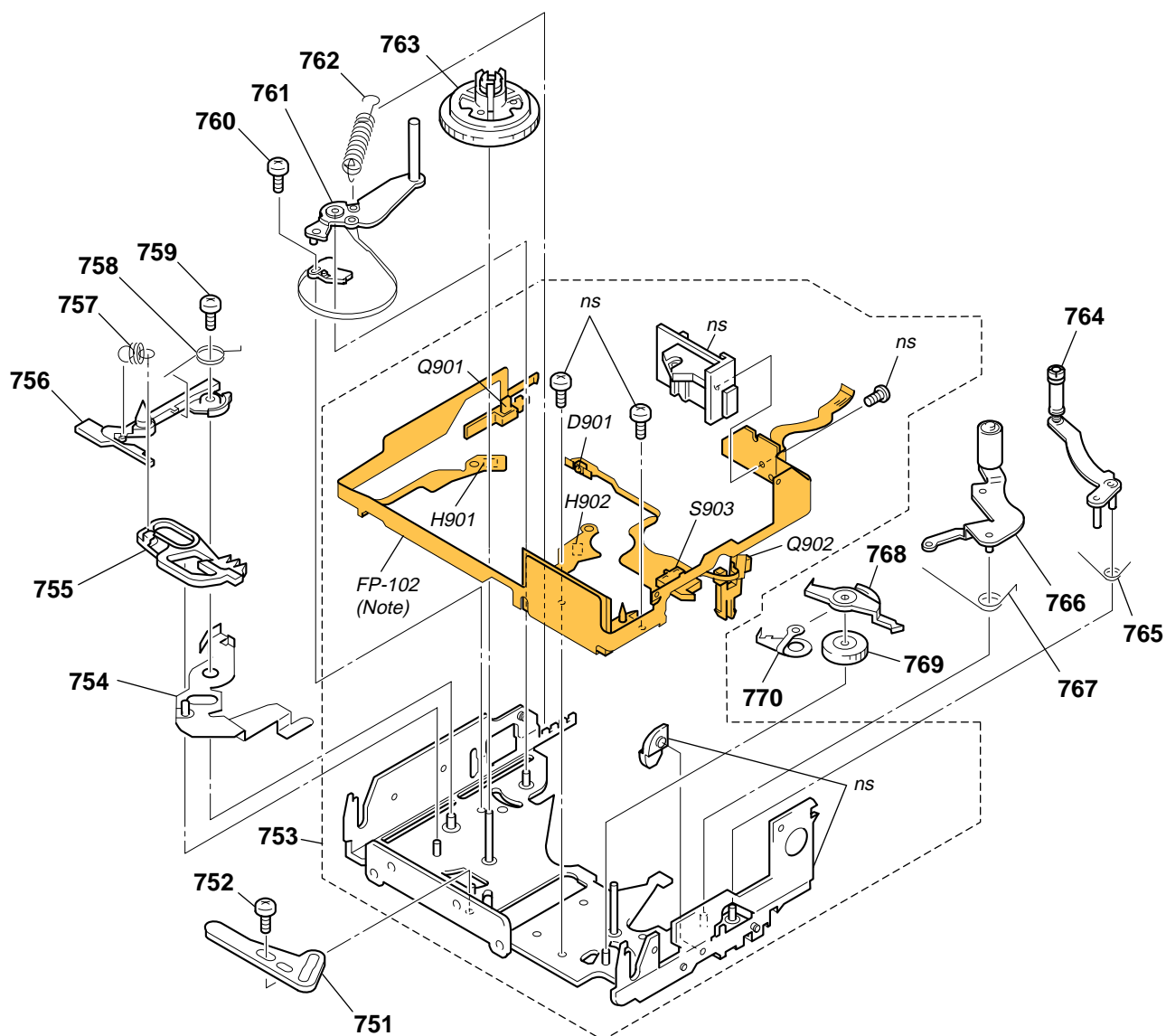


Ref. No.	Part No.	Descriptions
701	3-703-816-14	SCREW (M1.4)
702	X-3952-017-3	CASSETTE COMPARTMENT ASSY
703	3-059-082-01	SPRING, TENSION (CASSETTE COMPARTMENT S)
704	3-059-208-01	SPRING (CASSETTE COMPARTMENT T)
705	X-3950-370-3	DAMPER ASSY
706	3-059-101-03	RETAINER, LS GUIDE
707	7-624-102-04	STOP RING 1.5, TYPE -E

Ref. No.	Part No.	Description
709	3-704-197-21	SCREW (M1.4X2.5), SPECIAL HEAD
710	X-3950-364-1	GEAR ASSY, GOOSENECK
711	X-3950-366-1	TABLE ASSY, T REEL
712	3-075-097-01	SCREW (M1.4X1.4), SPECIAL HEAD
713	3-059-093-01	RETAINER, LED
714	X-3950-361-1	PLATE ASSY, RETAINER
M901	A-7048-968-A	DRUM (DEH-18E-R) (SERVICE)

5-1-13. LS CHASSIS BLOCK ASSEMBLY

ns: not supplied



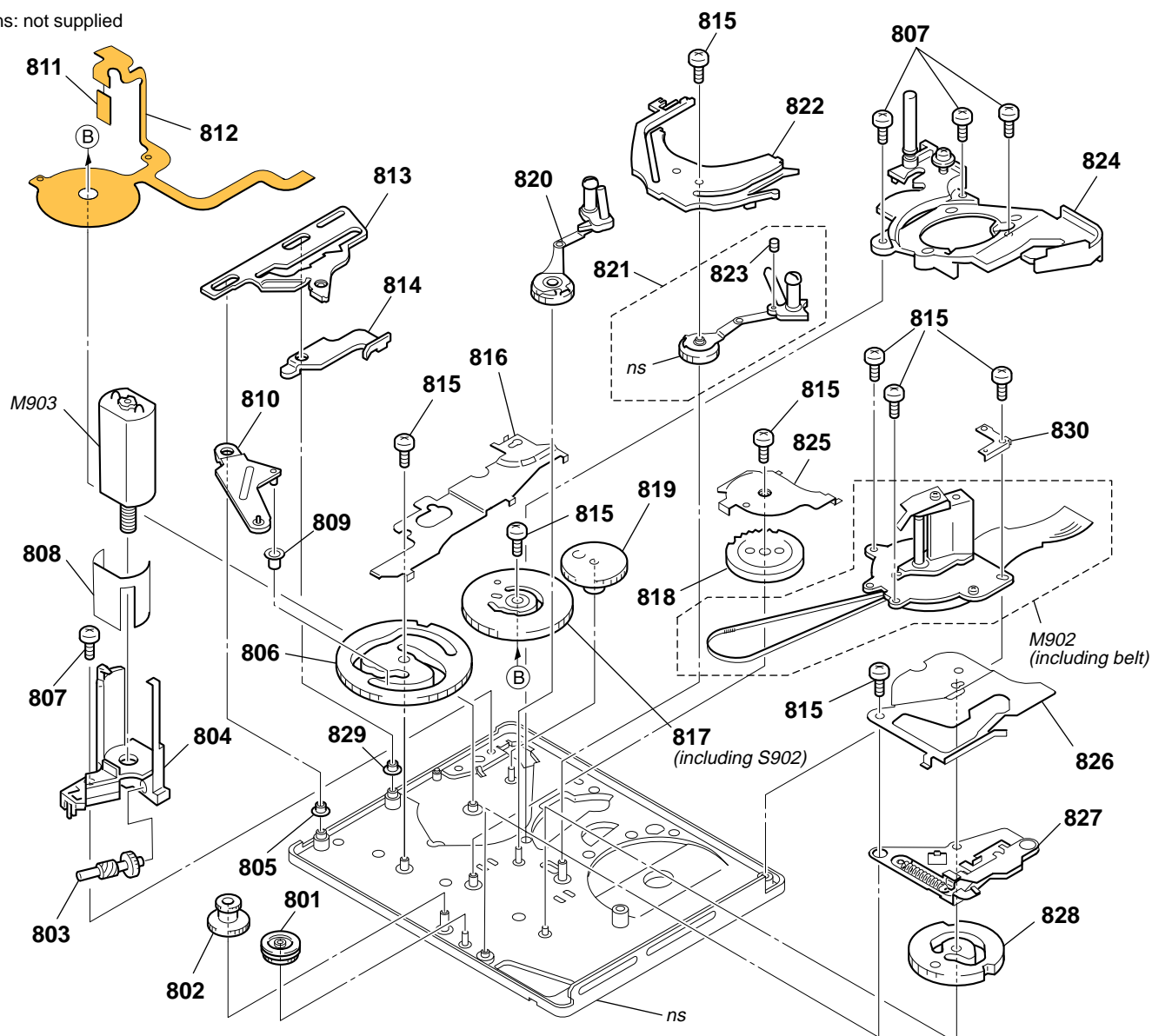
Note: FP-102 is included in the LS sub assy and is attached to chassis by hot-press.
Because installation of FP-102 requires a very high accuracy, FP-102 is not supplied as an independent service parts.

Ref. No.	Part No.	Description
751	3-059-173-01	PLATE, LS CAM
752	3-075-097-01	SCREW (M1.4X1.4), SPECIAL HEAD
753	A-7094-816-B	LS BLOCK ASSY
754	X-3950-371-1	ARM ASSY, BRAKE (S) DRIVING
755	3-059-166-01	BRAKE (S)
756	3-059-146-01	POSITIONING (S), CASSETTE
757	3-059-167-01	SPRING (BRAKE S), TENSION COIL
758	3-059-169-01	SPRING (BRAKE S ARM), TORSION
759	3-703-816-14	SCREW (M1.4)
760	3-059-090-01	SCREW (M1.4X2.5), SPECIAL HEAD
* 761	X-3950-358-4	TG1 ASSY
762	3-059-156-01	SPRING (TENSION REGULATOR)
763	X-3950-365-2	TABLE ASSY, S REEL

Ref. No.	Part No.	Description
764	A-7094-819-A	TG7 BLOCK ASSY
765	3-059-165-01	SPRING (TG7 RETURN), TORSION
766	X-3950-359-1	ARM ASSY, PINCH
767	3-059-161-01	SPRING (PINCH RETURN), TORSION
768	3-059-170-01	BRAKE (T)
769	3-059-171-01	GEAR (T), BRAKE
770	3-059-172-01	SPRING (T), BRAKE
D901	8-719-078-71	DIODE LN57A,SO (TAPE LED)
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
Q901	8-729-028-71	TRANSISTOR, PN166,SO (TAPE END)
Q902	8-729-028-71	TRANSISTOR, PN166,SO (TAPE TOP)
S903	1-572-288-11	SWITCH, PUSH (C.C. DOWN)

5-1-14. MECHANISM CHASSIS BLOCK ASSEMBLY

ns: not supplied



Ref. No.	Part No.	Description
801	3-059-211-01	GEAR, CONVERSION
802	3-059-220-01	GEAR, RELAY
803	3-059-187-01	SHAFT, WORM
804	3-059-186-02	HOLDER, MOTOR
805	3-060-002-01	ROLLER, LS GUIDE
806	3-059-189-01	GEAR (A), CAM
807	3-704-197-21	SCREW (M1.4X2.5), SPECIAL HEAD
808	3-059-225-01	SHIELD, MOTOR
809	3-059-191-01	ROLLER, LS
810	3-059-190-01	ARM, LS
811	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)
812	1-677-084-11	FP-100 FLEXIBLE BOARD
813	3-059-149-01	SLIDER, TG1 CAM
814	3-059-148-01	ARM, TG1 DRIVING
815	3-703-816-14	SCREW (M1.4)
816	3-059-117-01	COVER (A), GEAR
817	X-3950-367-1	GEAR ASSY, MODE (including S902 (MODE SWITCH))

Ref. No.	Part No.	Description
818	3-059-139-01	GEAR, GL DRIVING
819	3-059-188-01	GEAR, DECELERATION
820	A-7094-818-A	COASTER (S) BLOCK ASSY
821	A-7094-817-A	COASTER (T) BLOCK ASSY
822	3-059-126-01	RAIL, GUIDE
823	3-962-914-01	SCREW (M1.4X2)
824	A-7094-822-A	DRUM BASE BLOCK ASSY
825	3-059-118-01	COVER (B), GEAR
826	3-059-083-01	COVER (C), GEAR
827	X-3950-368-1	ARM ASSY, PINCH DRIVING
828	3-059-192-01	GEAR (B), CAM
829	3-063-355-01	ROLLER (S1), LS GUIDE
830	3-065-202-01	SUPPORT, TG7
M902	8-835-685-01	MOTOR, DC SCD18A/C-NP (including BELT) (CAPSTAN)
M903	A-7094-823-A	MOTOR BLOCK ASSY, L

5-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS**
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Abbreviation
AUS : Australian model EE : East European model KR : Korean model
CH : Chinese model HK : Hong Kong model NE : North European model
CND : Canadian model JE : Tourist model RU : Russian model
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS**
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .
- CAPACITORS**
uF: μ F
- COILS**
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description
	A-7067-302-A	BT-003 BOARD, COMPLETE (TRV950/TRV950E) *****

(Parts on BT-003 board are not replaced individually. They are supplied as being mounted.)

A-7078-335-A	CD-389 BOARD, COMPLETE *****
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(IC100, 101 and 105 are not included in this complete board.)

< CAPACITOR >

C102	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C103	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C104	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C105	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C106	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C107	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C108	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C111	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C112	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C113	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C114	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C115	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C116	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C117	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C118	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C119	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C120	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C121	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C122	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C123	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C124	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C125	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C126	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C127	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C128	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C129	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C130	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C131	1-104-851-11	TANTAL. CHIP	10uF	20%	10V

Ref. No.	Part No.	Description
		< CONNECTOR >

CN100	1-784-938-21	CONNECTOR, BOARD TO BOARD 60P
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< IC >

IC100	A-7012-866-A	PRISM BLOCK (ZGDSY2) (Note 1, 2)
IC101	A-7012-866-A	PRISM BLOCK (ZGDSY2) (Note 1, 2)
IC102	6-701-755-01	IC AD80017AJRURL
IC103	6-701-755-01	IC AD80017AJRURL
IC104	6-701-755-01	IC AD80017AJRURL

IC105	A-7012-866-A	PRISM BLOCK (ZGDSY2) (Note 1, 2)
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< COIL >

L100	1-469-058-11	INDUCTOR	22uH
L101	1-469-525-91	INDUCTOR	10uH
L102	1-469-525-91	INDUCTOR	10uH
L103	1-469-058-11	INDUCTOR	22uH
L104	1-469-058-11	INDUCTOR	22uH
L105	1-469-525-91	INDUCTOR	10uH

< TRANSISTOR >

Q100	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO
Q101	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO
Q102	8-729-037-74	TRANSISTOR	UN9213J- (TX).SO

< RESISTOR >

R100	1-218-990-11	SHORT CHIP	0		
R101	1-218-990-11	SHORT CHIP	0		
R102	1-218-990-11	SHORT CHIP	0		
R103	1-218-990-11	SHORT CHIP	0		
R104	1-218-990-11	SHORT CHIP	0		
R105	1-218-990-11	SHORT CHIP	0		
R106	1-218-941-81	RES-CHIP	100	5%	1/16W
R107	1-218-941-81	RES-CHIP	100	5%	1/16W
R108	1-218-941-81	RES-CHIP	100	5%	1/16W
R109	1-218-990-11	SHORT CHIP	0		
R110	1-218-990-11	SHORT CHIP	0		
R111	1-218-990-11	SHORT CHIP	0		

(Note 1) Be sure to read "Note on the CCD Imager Replacement" on page 4-12 when changing the prism block.

(Note 2) CCD Imager (IC100, 101 and 105) is supplied as a prism block.

CK-116

Ref. No.	Part No.	Description
	A-7078-338-A	CK-116 BOARD, COMPLETE *****
		< BATTERY >
BT5201	1-756-128-11	BATTERY, LITHIUM (SECONDARY)
		< CAPACITOR >
C5201	1-135-957-91	TANTAL. CHIP 10uF 20% 16V
C5202	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
		< CONNECTOR >
CN5201	1-794-997-11	PIN, CONNECTOR 20P
CN5202	1-816-463-11	PIN, CONNECTOR (PC BOARD) 10P
CN5203	1-784-938-21	CONNECTOR, BOARD TO BOARD 60P
CN5204	1-794-375-21	PIN, CONNECTOR 2P
CN5205	1-816-684-11	CONNECTOR, FFC/FPC (ZIF) 8P
CN5206	1-766-336-21	CONNECTOR, FFC/FPC 6P
		< DIODE >
D5201	8-719-056-61	DIODE MAZS082008SO
D5202	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D5203	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D5204	8-719-056-61	DIODE MAZS082008SO
D5205	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D5206	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D5207	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D5208	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D5209	8-719-062-16	DIODE 01ZA8.2 (TPL3)
		< RESISTOR >
R5208	1-218-990-11	SHORT CHIP 0
R5209	1-218-990-11	SHORT CHIP 0
R5210	1-218-990-11	SHORT CHIP 0
R5211	1-218-990-11	SHORT CHIP 0
R5212	1-218-990-11	SHORT CHIP 0
R5213	1-218-954-11	RES-CHIP 1.2K 5% 1/16W
R5214	1-218-954-11	RES-CHIP 1.2K 5% 1/16W
R5215	1-218-954-11	RES-CHIP 1.2K 5% 1/16W
R5216	1-218-954-11	RES-CHIP 1.2K 5% 1/16W
R5217	1-218-955-11	RES-CHIP 1.5K 5% 1/16W
R5218	1-218-955-11	RES-CHIP 1.5K 5% 1/16W
R5219	1-218-955-11	RES-CHIP 1.5K 5% 1/16W
R5220	1-218-955-11	RES-CHIP 1.5K 5% 1/16W
R5221	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R5222	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R5223	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R5224	1-218-957-11	RES-CHIP 2.2K 5% 1/16W
R5225	1-218-964-11	RES-CHIP 8.2K 5% 1/16W
R5226	1-218-960-11	RES-CHIP 3.9K 5% 1/16W
R5227	1-218-960-11	RES-CHIP 3.9K 5% 1/16W
R5228	1-218-960-11	RES-CHIP 3.9K 5% 1/16W
R5229	1-218-960-11	RES-CHIP 3.9K 5% 1/16W
R5230	1-218-970-11	RES-CHIP 27K 5% 1/16W
R5231	1-218-964-11	RES-CHIP 8.2K 5% 1/16W
R5232	1-218-964-11	RES-CHIP 8.2K 5% 1/16W
R5233	1-218-964-11	RES-CHIP 8.2K 5% 1/16W
R5234	1-218-964-11	RES-CHIP 8.2K 5% 1/16W

Ref. No.	Part No.	Description
R5235	1-218-970-11	RES-CHIP 27K 5% 1/16W
R5236	1-218-970-11	RES-CHIP 27K 5% 1/16W
R5237	1-218-970-11	RES-CHIP 27K 5% 1/16W
R5238	1-218-970-11	RES-CHIP 27K 5% 1/16W
R5239	1-218-990-11	SHORT CHIP 0
R5240	1-218-990-11	SHORT CHIP 0
R5243	1-218-949-11	RES-CHIP 470 5% 1/16W
R5244	1-218-990-11	SHORT CHIP 0
		< SWITCH >
S5116	1-771-138-82	SWITCH, KEY BOARD (DISPLAY/TOUCH PANEL)
S5201	1-572-342-11	SWITCH, SLIDE (AUTO LOCK/MANU/HOLD)
S5202	1-762-648-21	SWITCH, SLIDE (ZEBRA OFF/70/100)
S5203	1-771-138-82	SWITCH, KEY BOARD (DATA CODE)
S5204	1-571-787-31	SWITCH, TACTILE (EDITSEARCH-)
S5205	1-571-787-31	SWITCH, TACTILE (EDITSEARCH+)
S5206	1-771-138-82	SWITCH, KEY BOARD (STOP)
S5207	1-771-138-82	SWITCH, KEY BOARD (REW)
S5208	1-771-138-82	SWITCH, KEY BOARD (PLAY)
S5209	1-771-138-82	SWITCH, KEY BOARD (FF)
S5210	1-771-138-82	SWITCH, KEY BOARD (PAUSE)
S5211	1-771-138-82	SWITCH, KEY BOARD (REC)
S5212	1-771-138-82	SWITCH, KEY BOARD (REC)
S5213	1-771-138-82	SWITCH, KEY BOARD (COLOR BAR)
S5214	1-771-138-82	SWITCH, KEY BOARD (VOLUME+)
S5215	1-771-138-82	SWITCH, KEY BOARD (VOLUME-)
S5217	1-771-138-82	SWITCH, KEY BOARD (AUDIO DUB)
S5218	1-571-787-31	SWITCH, TACTILE (BACK LIGHT)
S5219	1-571-787-31	SWITCH, TACTILE (SPOT LIGHT)
S5220	1-771-138-82	SWITCH, KEY BOARD (CUSTOM PRESET)
S5221	1-771-138-82	SWITCH, KEY BOARD (RESET)

Electrical parts list of the DB-014 board is not shown.
Page 5-17 to 5-23 are not shown.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type.

DCR-TRV940/TRV940E/TRV950/TRV950E

FP-102	FP-495	FP-496	FP-497	FP-498	FP-499	FP-504	JK-222
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Ref. No.	Part No.	Description
		FP-102 FLEXIBLE BOARD (Not supplied) *****
		< HOLE ELEMENT >
H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
		< DIODE >
D901	8-719-078-71	DIODE LN57A.SO (TAPE LED)
		< TRANSISTOR >
Q901	8-729-028-71	TRANSISTOR PN166.SO (TAPE END)
Q902	8-729-028-71	TRANSISTOR PN166.SO (TAPE TOP)
		< SWITCH >
S903	1-572-288-11	SWITCH, PUSH (C, C, DOWN)
		A-7078-342-A FP-495 FLEXIBLE BOARD, COMPLETE *****
S001	1-786-179-31	SWITCH, PUSH (1KEY) (PANEL OPEN)
S002	1-771-039-31	SWITCH, PUSH (PANEL REVERSE)
		A-7078-343-A FP-496 FLEXIBLE BOARD, COMPLETE *****
		< CONNECTOR >
CN001	1-784-938-21	CONNECTOR, BOARD TO BOARD 60P
CN002	1-784-939-11	CONNECTOR, BOARD TO BOARD 60P
		A-7078-344-A FP-497 FLEXIBLE BOARD, COMPLETE *****
		< DIODE >
D001	8-719-080-62	DIODE CL-190HBF-X-T (BLUETOOTH) (Note)
		< SWITCH >
S001	1-771-138-82	SWITCH, KEY BOARD (NETWORK) (Note)
		A-7078-345-A FP-498 FLEXIBLE BOARD, COMPLETE *****
		< CONNECTOR >
CN001	1-785-969-21	CONNECTOR, BOARD TO BOARD 100P
CN002	1-785-967-21	CONNECTOR, BOARD TO BOARD 100P
		A-7078-346-A FP-499 FLEXIBLE BOARD, COMPLETE *****
CN001	1-815-854-11	CONNECTOR, BOARD TO BOARD 80P
CN002	1-815-855-31	CONNECTOR, BOARD TO BOARD 80P

Ref. No.	Part No.	Description
	A-7078-341-A	FP-504 FLEXIBLE BOARD, COMPLETE *****
		< CAPACITOR >
C601	1-137-710-11	CERAMIC CHIP 10uF 20% 6.3V
		< DIODE >
D601	8-719-070-92	DIODE TLOU1008 (T05, SOY) (FLASH)
D602	8-719-052-25	DIODE CL-200IR-X-TU-BC (IR)
D603	8-719-061-82	DIODE TLSU1002 (TPX1, SONY) (CAMERA RECORDING)
D605	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D606	8-719-056-23	DIODE MA2S111- (K8).SO
D607	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D608	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D609	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D610	8-719-062-16	DIODE 01ZA8.2 (TPL3)
		< FUSE >
△F601	1-533-874-11	FUSE, MICRO (0.2A/24V)
		< IC >
IC601	8-742-221-00	HYB IC SBX3055-01
		< PHOTO INTERRUPTER >
PH601	8-759-014-54	HIC CNA1312K01S0
PH602	8-759-014-54	HIC CNA1312K01S0
		< TRANSISTOR >
Q601	8-729-037-72	TRANSISTOR UN9211J- (K8).SO
		< RESISTOR >
R601	1-216-838-11	METAL CHIP 27K 5% 1/16W
R602	1-216-832-11	METAL CHIP 8.2K 5% 1/16W
R603	1-216-813-11	METAL CHIP 220 5% 1/16W
R604	1-216-828-11	METAL CHIP 3.9K 5% 1/16W
R605	1-216-805-11	METAL CHIP 47 5% 1/16W
R606	1-216-815-11	METAL CHIP 330 5% 1/16W
R607	1-216-821-11	METAL CHIP 1K 5% 1/16W
		< SWITCH >
S601	1-771-487-21	SWITCH, SLIDE (FOCUS AUTO/MAN/INFINITY)
S602	1-771-138-82	SWITCH, KEY BOARD (PUSH AUTO)
S603	1-771-138-82	SWITCH, KEY BOARD (STROBO)
S604	1-771-138-82	SWITCH, KEY BOARD (FADER)
		A-7078-332-A JK-222 BOARD, COMPLETE *****
		< CONNECTOR >
CN401	1-785-828-11	CONNECTOR, SQUARE TYPE 4P (DV IN/OUT)
CN402	1-794-962-11	CONNECTOR, SQUARE TYPE (USB 5P) (USB)
		< DIODE >
D401	8-719-062-16	DIODE 01ZA8.2 (TPL3)
D402	8-719-062-16	DIODE 01ZA8.2 (TPL3)

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(Note) Although parts are mounted on the board, they are not used in TRV940/TRV940E.

JK-222

LB-080

MA-410

Ref. No.	Part No.	Description
< FERRITE BEAD >		
FB401	1-500-444-11	FERRITE 0uH
FB402	1-500-444-11	FERRITE 0uH
FB403	1-500-444-11	FERRITE 0uH
FB404	1-500-444-11	FERRITE 0uH
FB405	1-500-444-11	FERRITE 0uH
FB406	1-500-444-11	FERRITE 0uH
FB407	1-500-444-11	FERRITE 0uH
< JACK >		
J401	1-778-518-11	CONNECTOR, EXTERNAL (S VIDEO ID-2)
J402	1-793-995-11	JACK, SUPER SMALL TYPE (LANC)
J403	1-569-950-41	JACK (SMALL TYPE) (HEADPHONES)
J404	1-778-040-11	JACK, SMALL TYPE (AUDIO/VIDEO)
< LINE FILTER >		
LF401	1-419-100-21	INDUCTOR 0uH
LF402	1-419-100-21	INDUCTOR 0uH
< RESISTOR >		
R401	1-216-864-11	METAL CHIP 0 5% 1/16W
R402	1-216-864-11	METAL CHIP 0 5% 1/16W
R403	1-216-864-11	METAL CHIP 0 5% 1/16W
R404	1-218-965-11	RES-CHIP 10K 5% 1/16W
R406	1-216-864-11	METAL CHIP 0 5% 1/16W
R407	1-218-965-11	RES-CHIP 10K 5% 1/16W
R408	1-216-864-11	METAL CHIP 0 5% 1/16W
R409	1-216-864-11	METAL CHIP 0 5% 1/16W
R410	1-216-864-11	METAL CHIP 0 5% 1/16W
R411	1-216-864-11	METAL CHIP 0 5% 1/16W
< VARISTOR >		
VDR401	1-801-862-11	VARISTOR, CHIP
VDR402	1-803-742-21	VARISTOR, CHIP
VDR403	1-803-742-21	VARISTOR, CHIP
VDR404	1-801-862-11	VARISTOR, CHIP
VDR405	1-803-742-21	VARISTOR, CHIP
VDR406	1-801-862-11	VARISTOR, CHIP
VDR407	1-801-862-11	VARISTOR, CHIP
VDR408	1-801-862-11	VARISTOR, CHIP
VDR409	1-803-742-21	VARISTOR, CHIP
A-7078-333-A LB-080 BOARD, COMPLETE		

< CAPACITOR >		
C6101	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C6102	1-164-505-11	CERAMIC CHIP 2.2uF 16V
< CONNECTOR >		
CN6101	1-573-360-21	CONNECTOR, FFC/FPC 20P
CN6102	1-573-356-21	CONNECTOR, FFC/FPC 16P
< DIODE >		
D6101	8-719-018-51	DIODE CL-170R-CD-T (REC)
D6102	8-719-082-33	DIODE NSCW100-T39 (BACKLIGHT)

Ref. No.	Part No.	Description
< IC >		
IC6101	8-759-581-11	IC NJM2125F (TE2)
< TRANSISTOR >		
Q6101	8-729-054-48	TRANSISTOR RN4983FE (TPLR3)
Q6102	8-729-054-48	TRANSISTOR N1B04FE-Y/GR (TPLR3)
< RESISTOR >		
R6101	1-218-948-11	RES-CHIP 390 5% 1/16W
R6102	1-208-941-11	METAL CHIP 180K 0.5% 1/16W
R6103	1-208-719-11	METAL CHIP 33K 0.5% 1/16W
R6104	1-218-959-11	RES-CHIP 3.3K 5% 1/16W
R6105	1-216-839-11	METAL CHIP 33K 5% 1/16W
R6106	1-211-977-11	METAL CHIP 22 0.5% 1/10W
< THERMISTOR >		
TH6101	1-810-811-11	THERMISTOR, NTC (1608)
A-7078-336-A MA-410 BOARD, COMPLETE		

< CAPACITOR >		
C5901	1-164-939-11	CERAMIC CHIP 0.0022uF 10% 50V
C5905	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V
C5906	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V
C5907	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V
C5908	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C5909	1-107-819-11	CERAMIC CHIP 0.022uF 10% 16V
C5910	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C5911	1-164-937-11	CERAMIC CHIP 0.001uF 10% 50V
C5912	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C5913	1-164-874-11	CERAMIC CHIP 100PF 5% 50V
C5914	1-164-874-11	CERAMIC CHIP 100PF 5% 50V
C5915	1-164-937-11	CERAMIC CHIP 0.001uF 10% 50V
C5917	1-164-874-11	CERAMIC CHIP 100PF 5% 50V
C5918	1-164-874-11	CERAMIC CHIP 100PF 5% 50V
C5920	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C5921	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C5922	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C5923	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V
C5924	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C5925	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V
C5926	1-164-174-11	CERAMIC CHIP 0.0082uF 10% 25V
C5927	1-164-174-11	CERAMIC CHIP 0.0082uF 10% 25V
C5928	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V
C5929	1-164-942-11	CERAMIC CHIP 0.0068uF 10% 16V
C5930	1-164-943-11	CERAMIC CHIP 0.01uF 10% 16V
C5931	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V
C5932	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C5933	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V
C5934	1-164-156-11	CERAMIC CHIP 0.1uF 25V
C5935	1-117-919-11	TANTAL. CHIP 10uF 20% 6.3V
C5936	1-165-128-11	CERAMIC CHIP 0.22uF 16V
C5937	1-125-841-91	TANTAL. CHIP 22uF 20% 4V
C5938	1-125-777-11	CERAMIC CHIP 0.1uF 10% 10V

DCR-TRV940/TRV940E/TRV950/TRV950E

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Ref. No.	Part No.	Description			
C5939	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5940	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5941	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5944	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
				(Note)	
C5945	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
				(Note)	
< CONNECTOR >					
* CN5901	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
* CN5902	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
CN5903	1-779-327-11	CONNECTOR, FFC/FPC 6P			
CN5904	1-816-684-11	CONNECTOR, FFC/FPC (ZIF) 8P			
CN5905	1-816-177-11	CONNECTOR, FFC/FPC (ZIF) 16P			
CN5906	1-784-422-11	CONNECTOR, FFC/FPC (ZIF) 33P			
< DIODE >					
D5903	8-719-062-16	DIODE 01ZA8.2 (TPL3)			
< FERRITE BEAD >					
FB5901	1-500-444-11	FERRITE	0uH		
FB5902	1-500-444-11	FERRITE	0uH		
< IC >					
IC5901	8-759-638-50	IC AN2901FHQ-EB			
IC5902	8-759-581-11	IC NJM2125F (TE2)			
< JACK >					
J5901	1-691-737-41	JACK (SMALL TYPE) (MIC (PLUG IN POWER))			
< COIL >					
L5901	1-469-528-91	INDUCTOR	100uH		
< TRANSISTOR >					
Q5901	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
Q5902	8-729-048-77	TRANSISTOR	XP4313- (TX).SO		
Q5903	8-729-048-77	TRANSISTOR	XP4313- (TX).SO		
Q5904	8-729-402-42	TRANSISTOR	UN5213-TX		
Q5905	8-729-403-35	TRANSISTOR	UN5113-TX		
Q5906	8-729-140-75	TRANSISTOR	2SD999-T1-CLCK		
< RESISTOR >					
R5901	1-216-864-11	METAL CHIP	0	5%	1/16W
R5902	1-218-990-11	SHORT CHIP	0		
R5903	1-218-968-11	RES-CHIP	18K	5%	1/16W
R5904	1-218-971-11	RES-CHIP	33K	5%	1/16W
R5905	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R5906	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5907	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5908	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5909	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R5910	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R5911	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5912	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5914	1-216-803-11	METAL CHIP	33	5%	1/16W
R5915	1-216-803-11	METAL CHIP	33	5%	1/16W

(Note) C5944 and C5945 are mounted on the board with suffix number 12.

Ref. No.	Part No.	Description			
R5916	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5917	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R5918	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5919	1-208-910-11	RES-CHIP	9.1K	5%	1/16W
R5920	1-218-967-11	RES-CHIP	15K	5%	1/16W
R5921	1-208-910-11	RES-CHIP	9.1K	5%	1/16W
R5922	1-218-949-11	RES-CHIP	470	5%	1/16W
R5923	1-218-990-11	SHORT CHIP	0		
R5924	1-218-990-11	SHORT CHIP	0		
R5925	1-218-949-11	RES-CHIP	470	5%	1/16W
R5926	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R5927	1-220-191-81	RES-CHIP	5.1K	5%	1/16W
R5928	1-220-191-81	RES-CHIP	5.1K	5%	1/16W
R5929	1-216-817-11	METAL CHIP	470	5%	1/16W
R5930	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R5931	1-218-971-11	RES-CHIP	33K	5%	1/16W
R5933	1-218-954-11	RES-CHIP	1.2K	5%	1/16W
R5934	1-218-968-11	RES-CHIP	18K	5%	1/16W
R5935	1-218-971-11	RES-CHIP	33K	5%	1/16W
R5936	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R5937	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5938	1-208-912-11	METAL CHIP	11K	0.5%	1/16W
R5939	1-216-820-11	METAL CHIP	820	5%	1/16W
R5940	1-216-833-11	METAL CHIP	10K	5%	1/16W
R5941	1-208-701-11	METAL CHIP	5.6K	0.5%	1/16W
R5943	1-208-912-11	METAL CHIP	11K	0.5%	1/16W
R5944	1-218-943-11	RES-CHIP	150	5%	1/16W
R5946	1-216-864-11	METAL CHIP	0	5%	1/16W
R5947	1-218-952-11	RES-CHIP	820	5%	1/16W
R5948	1-218-941-81	RES-CHIP	100	5%	1/16W
R5949	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5951	1-218-949-11	RES-CHIP	470	5%	1/16W
R5952	1-218-947-11	RES-CHIP	330	5%	1/16W
R5953	1-216-313-00	METAL CHIP	8.2	5%	1/10W
< VARISTOR >					
VDR591	1-801-862-11	VARISTOR, CHIP			
VDR592	1-801-862-11	VARISTOR, CHIP			
< CAPACITOR >					
C5701	1-113-988-11	TANTAL. CHIP	68uF	20%	4V
C5702	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5703	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5704	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5705	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5706	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5707	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C5708	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5709	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5710	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5711	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C5712	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5713	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C5714	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

Ref. No.	Part No.	Description			
C5715	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5716	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C5717	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C5718	1-164-866-11	CERAMIC CHIP	47PF	5%	50V
C5719	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5720	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5721	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5722	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C5723	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5724	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5726	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C5727	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C5801	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C5802	1-127-985-91	TANTAL. CHIP	47uF	20%	16V
C5803	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C5805	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C5807	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C5808	1-165-897-11	TANTAL. CHIP	22uF	20%	10V
< CONNECTOR >					
CN5701	1-573-364-11	CONNECTOR, FFC/FPC 24P			
CN5802	1-794-997-11	PIN, CONNECTOR 20P			
* CN5803	1-778-155-11	CONNECTOR, FFC/FPC (ZIF) 7P			
CN5804	1-784-420-11	CONNECTOR, FFC/FPC (ZIF) 21P			
CN5805	1-785-554-21	CONNECTOR (5P), CARD EDGE			
CN5806	1-816-463-11	PIN, CONNECTOR (PC BOARD) 10P			
< DIODE >					
D5701	8-719-404-50	DIODE MA111-TX			
D5702	8-719-084-46	DIODE 1SV288 (TPH3)			
< IC >					
IC5701	6-702-491-01	IC AN12580A-BB			
IC5702	8-759-833-18	IC CM7021L3-E2			
IC5801	8-759-573-02	IC BU9735K-E2			
< COIL >					
L5701	1-469-525-91	INDUCTOR	10uH		
L5702	1-414-771-91	INDUCTOR	10uH		
L5703	1-414-771-91	INDUCTOR	10uH		
L5704	1-414-771-91	INDUCTOR	10uH		
L5705	1-412-943-11	INDUCTOR	2.2uH		
L5801	1-412-056-11	INDUCTOR	4.7uH		
L5802	1-414-757-11	INDUCTOR	100uH		
< TRANSISTOR >					
Q5701	8-729-037-52	TRANSISTOR	2SD2216J-QR (K8).SO		
Q5702	8-729-037-74	TRANSISTOR	UN9213J- (K8).SO		
Q5801	8-729-042-72	TRANSISTOR	UN9214J- (K8).SO		
Q5802	8-729-042-26	TRANSISTOR	2SB1462J-QR (K8).SO		
< RESISTOR >					
R5701	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5702	1-208-719-11	METAL CHIP	33K	0.5%	1/16W
R5703	1-218-970-11	METAL CHIP	27K	0.5%	1/16W
R5705	1-218-985-11	RES-CHIP	470K	5%	1/16W
R5706	1-218-977-11	RES-CHIP	100K	5%	1/16W

Ref. No.	Part No.	Description			
R5707	1-216-835-11	METAL CHIP	15K	5%	1/16W
R5708	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R5709	1-218-973-11	RES-CHIP	47K	5%	1/16W
R5710	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5711	1-218-969-11	RES-CHIP	22K	5%	1/16W
R5712	1-218-975-11	RES-CHIP	68K	5%	1/16W
R5713	1-218-989-11	RES-CHIP	1M	5%	1/16W
R5714	1-218-977-11	RES-CHIP	100K	5%	1/16W
R5717	1-216-864-11	METAL CHIP	0	5%	1/16W
R5719	1-218-942-11	RES-CHIP	120	5%	1/16W
R5721	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5722	1-218-965-11	RES-CHIP	10K	5%	1/16W
R5727	1-218-974-11	RES-CHIP	56K	5%	1/16W
R5732	1-218-941-81	RES-CHIP	100	5%	1/16W
R5736	1-218-941-81	RES-CHIP	100	5%	1/16W
R5737	1-218-941-81	RES-CHIP	100	5%	1/16W
R5801	1-218-941-81	RES-CHIP	100	5%	1/16W
R5802	1-216-855-11	METAL CHIP	680K	5%	1/16W
R5803	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R5804	1-218-953-11	RES-CHIP	1K	5%	1/16W
R5805	1-216-864-11	METAL CHIP	0	5%	1/16W

A-7078-339-A SE-132 BOARD, COMPLETE

< CAPACITOR >

C4001	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C4002	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C4003	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4004	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4005	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4006	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4007	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4008	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4009	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C4010	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C4011	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C4012	1-127-692-11	CERAMIC CHIP	10uF	10%	6.3V
C4014	1-127-895-91	TANTAL. CHIP	22uF	20%	4V
C4015	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

< CONNECTOR >

CN4005 1-764-680-21 CONNECTOR, FFC/FPC (ZIF) 8P

< IC >

IC4001 8-759-489-19 IC NJM3230V (TE2)

< COIL >

L4001 1-414-771-91 INDUCTOR 10uH

< TRANSISTOR >

Q4001 8-729-042-26 TRANSISTOR 2SB1462J-QR (K8).SO

Q4002 8-729-037-74 TRANSISTOR UN9213J- (K8).SO

SE-132

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			
< RESISTOR >					
R4001	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4002	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4003	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4004	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4005	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4006	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4007	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4009	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4010	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4011	1-218-973-11	RES-CHIP	47K	5%	1/16W
< SENSOR >					
SE4001	1-476-807-31	SENSOR, ANGULAR VELOCITY (PITCH)			
SE4002	1-476-807-41	SENSOR, ANGULAR VELOCITY (YAW)			

Electrical parts list of the VC-288 board is not shown.
Page 5-29 to 5-36 are not shown.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
		ACCESSORIES *****			
△	1-475-599-14	ADAPTOR, AC (EXCEPT KR, CH)	3-075-495-21		MANUAL, INSTRUCTION (FRENCH, GERMAN) (TRV940E: E, JE/TRV950E: AEP, E)
△	1-475-599-73	ADAPTOR, AC (KR)	3-075-495-31		MANUAL, INSTRUCTION (ENGLISH, DUTCH) (TRV950E: AEP)
△	1-475-599-82	ADAPTOR, AC (CH)	3-075-495-41		MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TRV940E: AEP/TRV950E: AEP)
△	1-475-950-53	REMOTE COMMANDER (RMT-811)			
△	1-569-007-11	ADAPTOR, CONVERSION (E, HK, JE)	3-075-495-51		MANUAL, INSTRUCTION (ITALIAN, GREEK) (TRV940E: AEP/TRV950E: AEP)
△	1-569-008-21	ADAPTOR, CONVERSION 2P (E, HK)	3-075-495-61		MANUAL, INSTRUCTION (ARABIC, PERSIAN) (TRV940E: E/TRV950E: E)
	1-573-291-11	CONNECTOR, CONVERSION (21P) (AEP, UK, EE, NE, RU)	3-075-495-71		MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (TRV950E: HK)
△	1-575-131-11	CORD, POWER (AEP, EE, NE, RU)	3-075-495-81		MANUAL, INSTRUCTION (SIMPLIFIED CHINESE) (TRV940E: E, CH, JE/TRV950E: E)
△	1-696-819-11	CORD, POWER (AUS)	3-987-015-01		BELT (S), SHOULDER
	1-757-294-11	CORD, CONNECTION (USB 5P)	A-7024-735-A		MEMORY BLOCK ASSY (8),PACKING
△	1-769-608-11	CORD, POWER (E)			
△	1-776-985-11	CORD, POWER (KR)			
△	1-782-476-11	CORD, POWER (CH)			
△	1-783-374-11	CORD, POWER (UK, HK)			
△	1-790-107-22	CORD, POWER (US, CND)			
△	1-790-732-11	CORD, POWER (JE)			
	1-824-097-11	CORD, CONNECTION (A/V CONNECTING CABLE)			
	3-053-056-01	LID, BATTERY CASE (FOR RMT-811)			
	3-072-414-01	SPVD-008 (CD-ROM) (EXCEPT US, CND)			
	3-072-654-01	SPVD-008 (I) (CD-ROM) (US, CND)			
	3-073-861-01	CLOTH (TL), CLEANING			
	3-074-603-11	OPERATING INSTRUCTIONS FOR N/W (ENGLISH) (TRV950: US)			
	3-075-396-11	MANUAL, NETWORK INSTRUCTION (ENGLISH, FRENCH) (TRV950: CND,E/TRV950E: E, HK, AUS)			
	3-075-396-21	MANUAL, NETWORK INSTRUCTION (ENGLISH) (TRV950E: UK)			
	3-075-396-31	MANUAL, NETWORK INSTRUCTION (ENGLISH, DUTCH) (TRV950E: AEP)			
	3-075-396-41	MANUAL, NETWORK INSTRUCTION (FRENCH, GERMAN) (TRV950E: AEP)			
	3-075-396-51	MANUAL, NETWORK INSTRUCTION (ITALIAN, GREEK) (TRV950E: AEP)			
	3-075-396-61	MANUAL, NETWORK INSTRUCTION (SPANISH, PORTUGUESE) (TRV950E: AEP)			
	3-075-396-71	MANUAL, NETWORK INSTRUCTION (TRADITIONAL CHINESE) (TRV950: E/TRV950E: HK)			
	3-075-396-81	MANUAL, NETWORK INSTRUCTION (SIMPLIFIED CHINESE) (TRV950E: E)			
	3-075-494-11	MANUAL, INSTRUCTION (ENGLISH) (TRV940: E, HK, JE/TRV950)			
	3-075-494-21	MANUAL, INSTRUCTION (FRENCH) (TRV950: CND)			
	3-075-494-31	MANUAL, INSTRUCTION (SPANISH, PORTUGUESE) (TRV940: E, JE/TRV950: E)			
	3-075-494-41	MANUAL, INSTRUCTION (TRADITIONAL CHINESE) (TRV940: E, HK/TRV950: E)			
	3-075-494-51	MANUAL, INSTRUCTION (ARABIC) (TRV940: E/TRV950: E)			
	3-075-494-61	MANUAL, INSTRUCTION (KOREAN) (TRV940: KR, JE)			
	3-075-495-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH) (TRV940E: E, CH, JE/TRV950E: UK, E, HK, AUS)			

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

DCR-TRV940/TRV940E/TRV950/TRV950E

RMT-811

SONY®

LEVEL 2

SERVICE MANUAL

Ver 1.3 2005.08

US Model
Canadian Model
DCR-TRV950
AEP Model
DCR-TRV940E/TRV950E
UK Model
DCR-TRV950E
East European Model
North European Model
Russian Model
DCR-TRV940E/TRV950E
E Model
DCR-TRV940/TRV940E/TRV950/TRV950E
Hong Kong Model
DCR-TRV940/TRV950E
Australian Model
DCR-TRV950E
Chinese Model
DCR-TRV940E
Korea Model
DCR-TRV940
Tourist Model
DCR-TRV940/TRV940E

SUPPLEMENT-1

File this supplement with the service manual.
(PV05-036)

- Change of service parts.

SECTION 5 REPAIR PARTS LIST

5-2. ELECTRICAL PARTS LIST

 : Points changed portion.

Page	Former Type			New Type		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
5-24	D001	8-719-080-62	DIODE CL-190HBF-X-T (BLUETOOTH) (Note)	D001	6-501-052-02	DIODE CL-197HB1-D-T (BLUETOOTH) (Note)

(Note) Although parts are mounted on the board, they are not used in TRV940/TRV940E.

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2002.05	Official Release	—	—
1.1	2002.09	Correction-1 (C1)	<ul style="list-style-type: none"> • Correction of BLOCK DIAGRAMS • Correction of FRAME SCHEMATIC DIAGRAMS • Correction of SCHEMATIC DIAGRAMS S.M. correction : Page 3-1 , Page 4-1 , Page 4-77	Yes
1.2	2003.06	Correction-2 (C2)	<ul style="list-style-type: none"> • Addition of “PROCESS AFTER FIXING FLASH ERROR” S.M. correction : Page 5 , Page 1-5 , Page 1-6	Yes
1.3	2005.08	Supplement-1 (S1 PV05-036)	<ul style="list-style-type: none"> • Change of service parts 	No

DCR-TRV940/TRV940E/TRV950/TRV950E

RMT-811

Ver 1.0 2002.05

Revision History

SECTION 6 ADJUSTMENTS

ADJ

Link

• Before starting adjustments

- Adjusting items when replacing main parts and boards

• CAMERA SECTION ADJUSTMENTS

- PREPARATIONS BEFORE ADJUSTMENTS
- INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1E, 1F PAGE DATA
- CAMERA SYSTEM ADJUSTMENTS
- ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS
- LCD SYSTEM ADJUSTMENTS

• MECHANISM SECTION ADJUSTMENTS

- HOW TO ENTER RECORD MODE WITHOUT CASSETTE
- HOW TO ENTER PLAYBACK MODE WITHOUT CASSETTE
- TAPE PATH ADJUSTMENT

• VIDEO SECTION ADJUSTMENTS

- PREPARATIONS BEFORE ADJUSTMENTS
- SYSTEM CONTROL SYSTEM ADJUSTMENTS
- SERVO AND RF SYSTEM ADJUSTMENTS
- VIDEO SYSTEM ADJUSTMENTS
- AUDIO SYSTEM ADJUSTMENTS

• SERVICE MODE

- ADJUSTMENT REMOTE COMMANDER
- DATA PROCESS
- SERVICE MODE

Contents of LEVEL 2 and LEVEL 3 Service Manual

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2. DISASSEMBLY	○	×
3. BLOCK DIAGRAMS	OVERALL POWER	×
4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS	CD-389, CK-116, JK-222, LB-080, MA-410, PD-168, SE-132 BOARD FP-100, FP-102, FP-228, FP-495, FP-497, FP-500, FP-503, FP-504 FLEXIBLE	DB-014, VC-288 BOARD
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* The color reproduction frame is shown on page 6-75
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SECTION 6 ADJUSTMENTS

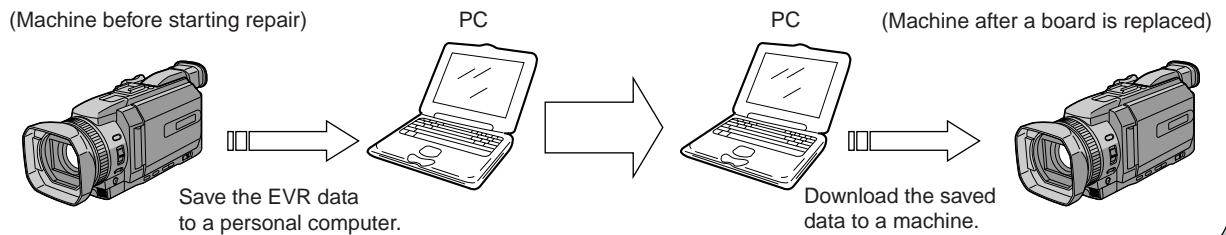
1. Before starting adjustments

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

Procedure 1

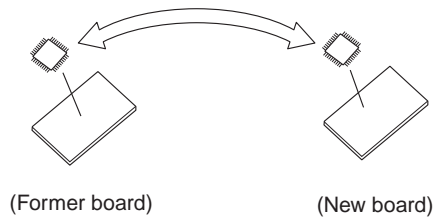
Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.



Procedure 2

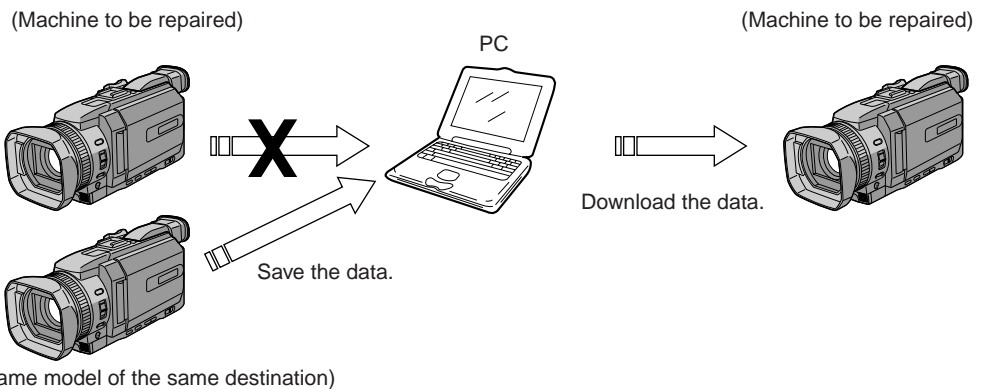
Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.

Remove the EEPROM and install it.



Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.



After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 6-3 for the items to be checked)



1-1. Adjusting items when replacing main parts and boards

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part																									
		Block replacement										Mounted part replacement															
		Lens device	FLASH unit	LASER unit D501	Mechanism deck (Note 1)	EVF block LCD903	LCD block LCD901	LCD block ND901	LCD block TA901	Mechanism deck M901	Mechanism deck M902	CD-389 board IC100, 101, 105	CD-389 board IC102, 103, 104	VC-288 board IC1202, X1201	VC-288 board IC1203, 1204, 1205	VC-288 board IC1801	VC-288 board IC2101	VC-288 board IC1901	VC-288 board IC1902	DB-014 board IC7001	DB-014 board IC4201	DB-014 board IC4202	LB-080 board D6102	SE-132 board SE4001, 4002	PD-168 board IC5701	PD-168 board IC5702	
Initialization of 8, A, B, C, D, E, F, 1B, 1E, 1F page data	Initialization of A, D page data																										
	Initialization of 8, C page data																										
	Initialization of E, F, 1E, 1F page data																										
	Initialization of B, 1B page data																										
Camera	66MHz/54MHz origin oscillation adj.												●		●												
	HALL adj.	●													●												
	MR adj.	●													●												
	Flange back adj.	●										●															
	AWB standard data input											●	●		●												
	MAX GAIN adj.											●	●		●												
	F No. & ND light quality standard data input	●																									
	LV standard data input											●	●		●												
	Auto white balance adj.											●	●		●												
	Color reproduction adj.											●	●		●												
	PSD sensor gain adj.	●																							●		
	Angular velocity sensor sensitivity adj.	●																							●		
	Mechanical shutter adj.	●																									
	Strobe light level adj.		●																								
	Strobe white balance adj.		●									●	●		●												
Hologram AF output adj.			●																								
Hologram AF angle check			●																								
Color EVF	VCO adj.																				●	●					
	RGB AMP adj.																				●	●					
	Contrast adj.																●				●	●					
	Back light adj.																				●	●					
	White balance adj.					●															●	●					
LCD	VCO adj.																									●	●
	RGB AMP adj.																									●	●
	Contrast adj.																●									●	●
	V-COM level adj.																									●	●
	V-COM adj.						●																			●	●
	White balance adj.						●	●																		●	●
System control	Touch panel adj.								●																		
	Node unique ID No. input																										
Servo, RF	CAP FG duty adj.				●					●																	
	Switching position adj.				●					●																	
	AGC center level adj.				●					●								●	●								
	APC & AEQ adj.				●					●								●	●								
	PLL f ₀ & LPF f ₀ adj.				●					●								●	●								
Video	Chroma BPF f ₀ adj.																				●						
	S VIDEO OUT Y level adj.																				●						
	S VIDEO OUT chroma level adj.																				●						
Mechanism	Tape path adj.				●				●	●											●						

Table 6-1-1 (1)

Note 1: When replacing the drum assy or mechanism deck, reset the drum rotation counted time.
(Refer to "Record of Use Check" of "6-4. SERVICE MODE")

• Adjusting items when replacing a board or EEPROM

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced part							
		BT-003 board (COMPLETE) (Note 2, 3)	CD-389 board (COMPLETE)	SE-132 board (COMPLETE)	DB-014 board (COMPLETE)	LB-080 board (COMPLETE)	PD-168 board (COMPLETE)	VC-288 board (COMPLETE) (Note 4)	VC-288 board IC2502 (EEP ROM)
									VC-288 board IC2901 (EEP ROM)
									Supporting Radar W
Initialization of 8, A, B, C, D, E, F, 1B, 1E, 1F page data	Initialization of A, D page data							●	●
	Initialization of 8, C page data							●	●
	Initialization of E, F, 1E, 1F page data							●	●
	Initialization of B, 1B page data							●	●
Camera	66MHz/54MHz origin oscillation adj.							●	●
	HALL adj.							●	●
	MR adj.							●	●
	Flange back adj.							●	●
	AWB standard data input		●					●	●
	MAX GAIN adj.		●					●	●
	F No. & ND light quality standard data input							●	●
	LV standard data input		●					●	●
	Auto white balance adj.		●					●	●
	Color reproduction adj.		●					●	●
	PSD sensor gain adj.			●				●	●
	Angular velocity sensor sensitivity adj.			●				●	●
	Mechanical shutter adj.							●	●
	Strobe light level adj.							●	●
	Strobe white balance adj.		●					●	●
	Hologram AF output adj.							●	●
	Hologram AF angle check								●
Color EVF	VCO adj.			●				●	●
	RGB AMP adj.			●				●	●
	Contrast adj.			●				●	●
	Back light adj.			●	●			●	●
	White balance adj.			●	●			●	●
LCD	VCO adj.							●	●
	RGB AMP adj.							●	●
	Contrast adj.							●	●
	V-COM level adj.							●	●
	V-COM adj.							●	●
	White balance adj.							●	●
System control	Touch panel adj.							●	●
	Node unique ID No. input							●	●
Servo, RF	CAP FG duty adj.							●	●
	Switching position adj.							●	●
	AGC center level adj.							●	●
	APC & AEQ adj.							●	●
	PLL f ₀ & LPF f ₀ adj.							●	●
Video	Chroma BPF f ₀ adj.			●				●	●
	S VIDEO OUT Y level adj.			●				●	●
	S VIDEO OUT chroma level adj.			●				●	●
Mechanism	Tape path adj.								

Table 6-1-1 (2)

Note 2: DCR-TRV950/TRV950E only

Note 3: After BT-003 board is replaced, check the “Info.” is correctly displayed with the following procedure.

- 1) Turn the power switch to “MEMORY/NETWORK”.
- 2) Press the “NETWORK” button.
- 3) Select/Execute the “Setup” at the network menu.
- 4) Select/Execute the “Bluetooth” at the network menu.
- 5) Select/Execute the “Info.” at the network menu.
- 6) Check that the following information is displayed.

Name	SONY DCR-TRV950 (or DCR-TRV950E)
Address	08 : 00 : 46 : XX : XX : XX

Note 4: When VC-288 board is replaced, before and after the replacement, execute “Initializing of Network Setting Data” and initialize network personal information (mail address, bookmark).
(DCR-TRV950/TRV950E only)
(Refer to “1-2-4. Initialization of B, 1B Page Data”)



6-1. CAMERA SECTION ADJUSTMENTS

1-1. PREPARATIONS BEFORE ADJUSTMENTS (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
 - Regulated power supply
- Color monitor
 - Digital voltmeter
- Vectorscope
 - Frequency counter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded). (Note)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	CPC-8 jig	J-6082-388-A	For adjusting the video section For adjusting the color viewfinder
J-9	Extension cable (60 P, 0.5 mm)	J-6082-466-A	For extension between the CD-389 board (CN100) and VC-288 board (CN1201)
J-10	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-11	Camera table	J-6082-384-A	For adjusting the flange back
J-12	CPC-jig for LCD panel	J-6082-529-A	For adjusting the LCD system
J-13	Background paper	J-2501-130-A	

Note 1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

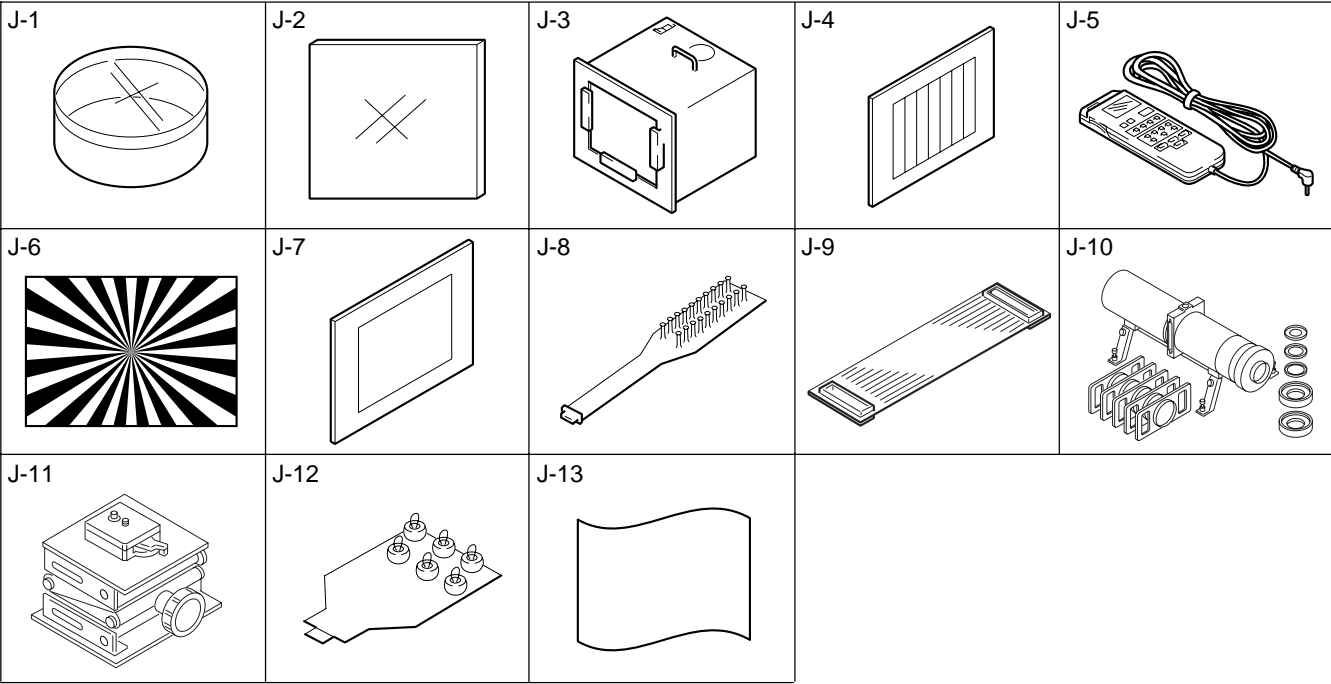


Fig. 6-1-1

1-1-2. Preparations

Note 1: For details of how remove the cabinet and boards, refer to “2. DISASSEMBLY”.

Note 2: When performing only the adjustments, the lens block and boards need not be disassembled.

Note 3: Before perform the adjustment, check that the data of page: 0, address: 10 is “00”.

If not, select page: 0, address: 10, and set data “00”.

1) Connect the equipment for adjustments according to Fig. 6-1-3.

Note 4: As removing the cabinet (R) (removing the CK-116 board CN5203) means removing the lithium 3V power supply (BT5201), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the NS-014 board has been removed, the self-diagnosis data, data on history of use (total drum rotation time, etc.) will not be lost. (Refer to “SELF-DIAGNOSIS FUNCTION” for the self-diagnosis data, and to “6-4. Service Mode” for the data on the history use)

Note 5: Setting the “Forced Camera Power ON” Mode

1) Select page: 0, address: 01, and set data: 01.

2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.

The above procedure will enable the camera power to be turned on with the power switch (PS-1870 block) removed. After completing adjustments, be sure to exit the “Forced Camera Power ON Mode”.

Note 6: Exiting the “Forced Camera Power ON” Mode

1) Select page: 0, address: 01, and set data: 01.

2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.

3) Select page: 0, address: 01, and set data: 00.

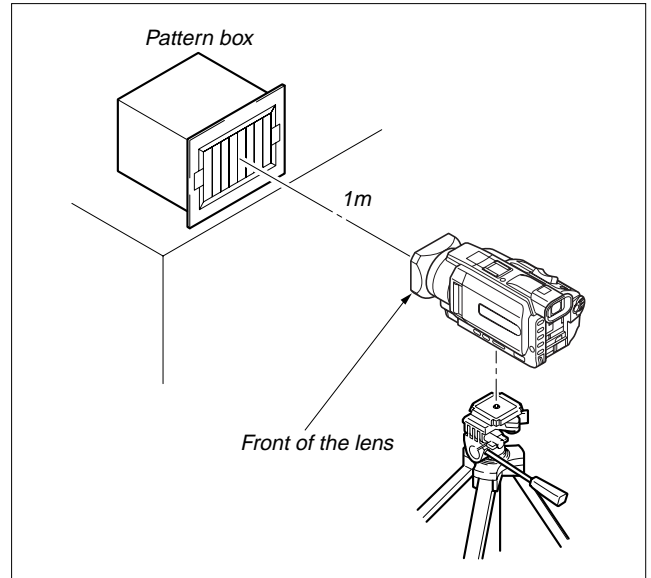


Fig. 6-1-2

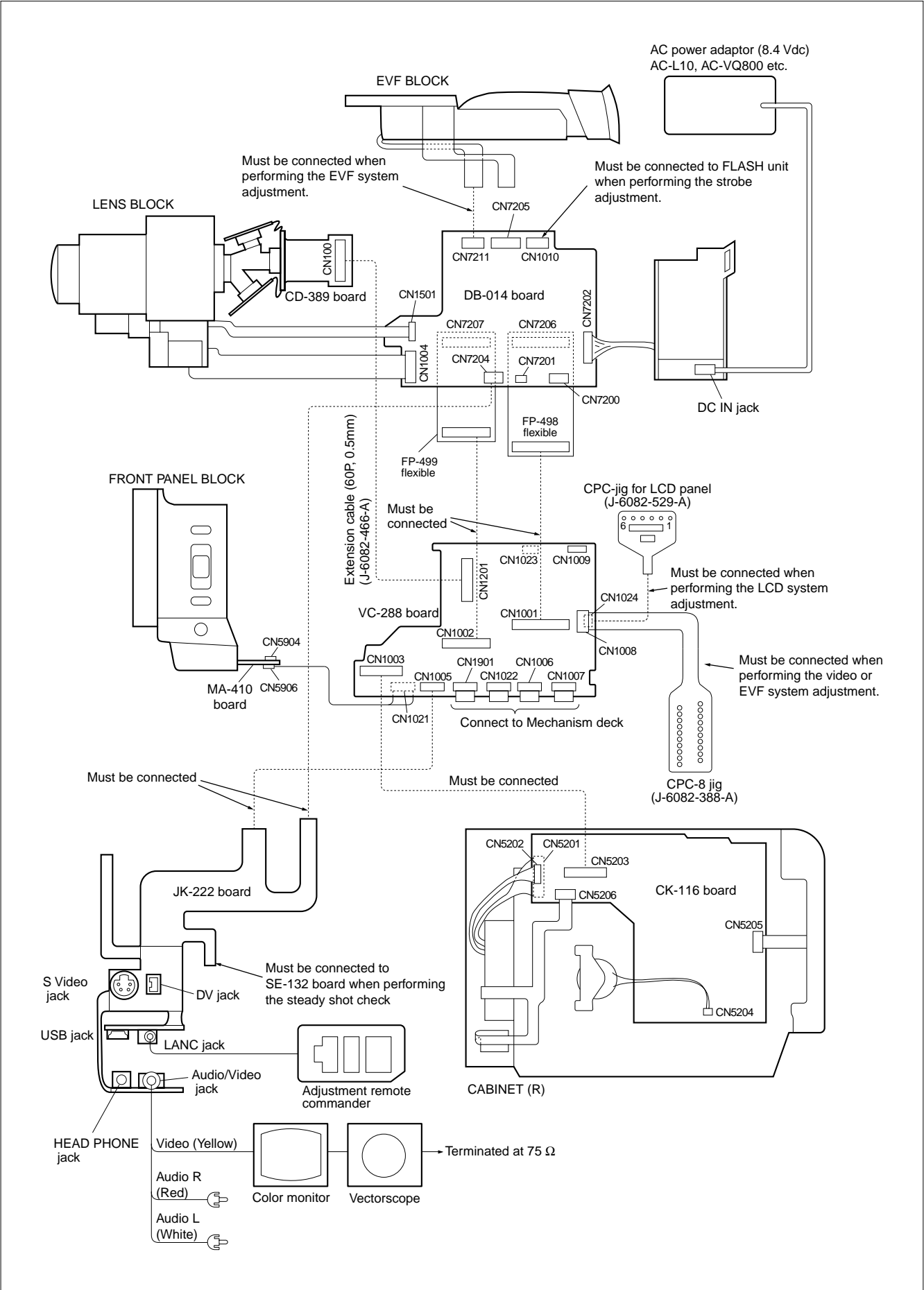


Fig. 6-1-3

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER switch (PS-1870 block)	CAMERA	8. WHITE BAL (KP-1870 block)	OFF
2. FOCUS (FP-504 flexible)	MAN	9. EXPOSURE (KP-1870 block)	AUTO
3. BACK LIGHT (CK-116 board)	OFF	10. P EFFECT (MENU setting)	OFF
4. SPOT LIGHT (CK-116 board)	OFF	11. FLASH LVL (MENU setting)	NORMAL
5. ZEBRA (CK-116 board)	OFF	12. D ZOOM (MENU setting)	OFF
6. PROGRAM AE (KP-1870 block)	OFF	13. STEADY SHOT (MENU setting)	OFF
7. SHUTTER SPEED (KP-1870 block)	AUTO	14. DEMO MODE (MENU setting)	OFF

2. Order of Adjustments

Basically carry out adjustments in the order given.

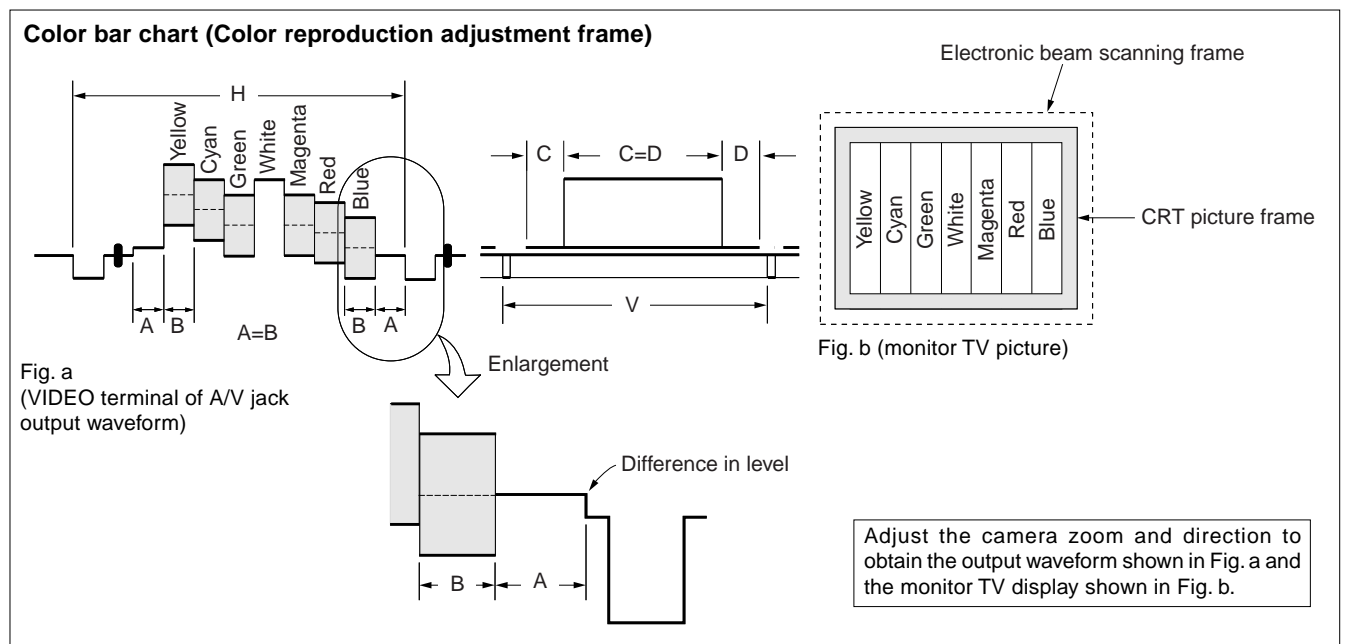


Fig. 6-1-4

3. Subjects

- 1) Color bar chart (Color reproduction adjustment frame)
When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 6-1-4. (Color reproduction adjustment frame)
- 2) Clear chart (Color reproduction adjustment frame)
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time)
- 3) Chart for flange back adjustment
Join together a piece of white A0 size paper (1189mm × 841 mm) and a piece of black paper to make the chart shown in Fig. 6-1-5.

Note: Use a non-reflecting and non-glazing vellum paper. The size must be A0 or larger and the joint between the white and black paper must not have any undulations.

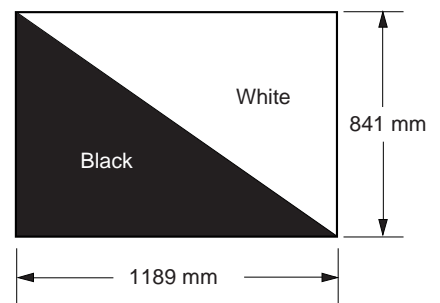


Fig. 6-1-5

4. Preparing the Flash Adjustment Box

A dark room is required to provide an accurate flash adjustment.
If it is not available, prepare the flash adjustment box as given below;

- 1) Provide woody board A, B and C of 15 mm thickness.

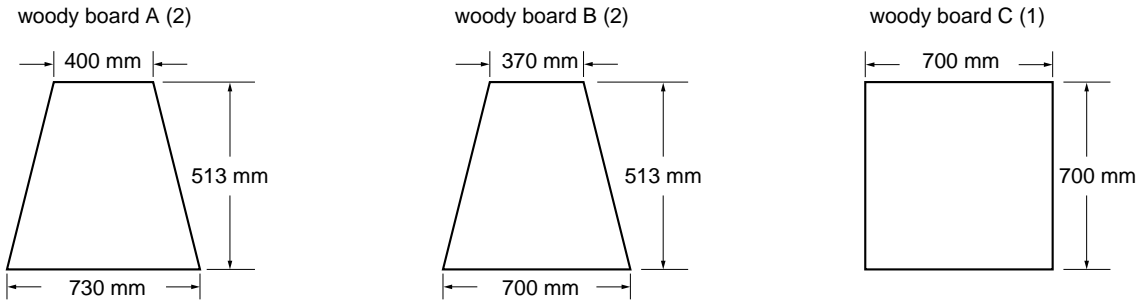


Fig. 6-1-6

- 2) Apply black mat paint to one side of woody board A and B.
- 3) Attach background paper (J-2501-130-A) to woody board C.
- 4) Assemble so that the black sides and the background paper side of woody board A, B and C are internal. (Fig. 6-1-7)

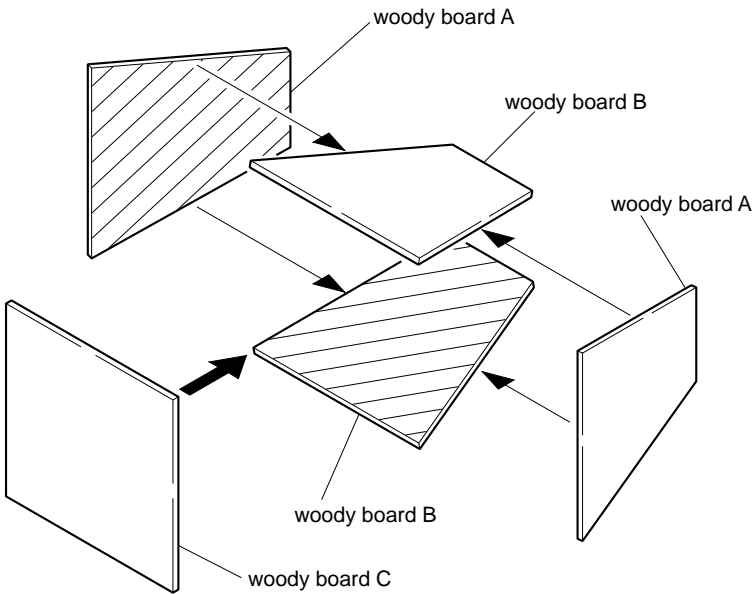


Fig. 6-1-7



1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1E, 1F PAGE DATA

Note 1: If reading/writing data on pages 1B, 1E, 1F, set data: 01 to page: 0, address: 10, and then select pages B, E, F. By this data setting, the pages 1B, 1E, 1F can be selected. After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

[Adjusting Procedure]

1. Initialaizing of A, D Page Data
2. Initialaizing of 8, C Page Data
3. Initialaizing of E, F, 1E, 1F Page Data
4. Initialaizing of B, 1B Page Data

[Connection of power supply for data initialization]

- 1) Connect the regulated power supply and a digital voltmeter, as shown in Fig. 6-1-8.
- 2) Adjust the output voltage of the regulated power supply so that the digital voltmeter indicates $6.0 \pm 0.1 \text{ Vdc}$.
- 3) Turn off the power switch.
- 4) Turn on the HOLD switch of the adjusting remote commander.
- 5) Turn on the power switch.
- 6) Initialize the data.

Note 2: Though the following message will be displayed on the LCD screen, this is normal.
"Use info lithium battery"

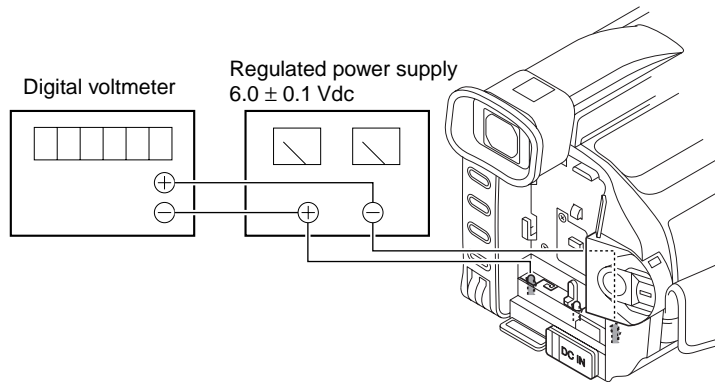


Fig. 6-1-8

1-2-1. Initialization of A, D Page Data

Note: Check that the data of page: 0, address: 10 is "00".

1. Initializing of A, D Page Data

Note 1: If the A, D page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of A, D page data
- 2) Touch panel adjustment

Note 2: Check that the voltage of power supply is $6.0 \pm 0.1\text{Vdc}$.

Note 3: NTSC model: DCR-TRV940/TRV950
PAL model: DCR-TRV940E/TRV950E

Adjustment Page	A
Adjustment Address	10 to FF
Adjustment Page	D
Adjustment Address	10 to 7F

A page initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	7	03		Set the following data 07: NTSC model 87: PAL model
4	7	00	20	
5	7	01	20	Press PAUSE button.
6	7	02		Check the data changes to "01".
7	2	00	29	
8	2	01	29	Press PAUSE button.
9				Perform "Modification of A, D Page Data"

D page initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	7	03		Set the following data 07: NTSC model 87: PAL model
4	7	00	22	
5	7	01	22	Press PAUSE button.
6	7	02		Check the data changes to "01".
7	2	00	29	
8	2	01	29	Press PAUSE button.
9				Perform "Modification of A, D Page Data"

2. Modification of A, D Page Data

If the A, D page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note 1: If copy the data built in the different model, the camcorder may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification A, D page data:

Order	Page	Address	Data	Procedure
1	2	00	29	
2	2	01	29	Press PAUSE button.

Note 2: If the following symptoms occur after completing of the "Modification A, D page data", check that the data of the "Fixed data-2" addresses of A, D page are same as those of the same model of the same destination.

- 1) "E: 20: 00" of self-diagnosis code on LCD screen is flashing.
- 2) The power is shut off so that unit cannot operate.

3. A Page table**Note 1:** Check that the data of page: 0, address: 10 is "00".**Note 2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the A, D Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of A, D Page Data")

Address	Initial value		Remark
	NTSC	PAL	
10 to 17	Fixed data-1 (Initialized data)		
18	Fixed data-2		
19 to 2A	Fixed data-1 (Initialized data)		
2B	Fixed data-2		
2C to 2E	Fixed data-1 (Initialized data)		
2F	Fixed data-2		
30 to 41	Fixed data-1 (Initialized data)		
42	Fixed data-2		
43 to 51	Fixed data-1 (Initialized data)		
52	Fixed data-2		
53	Fixed data-1 (Initialized data)		
54	Fixed data-2		
55 to 5C	Fixed data-1 (Initialized data)		
5D	Fixed data-2 (TRV950/TRV950E) Fixed data-1 (TRV940/TRV940E)		
5E to 61	Fixed data-1 (Initialized data)		
62	Fixed data-2		
63			
64 to 8F	Fixed data-1 (Initialized data)		
90	DA	DB	Touch panel adj.
91	27	25	
92	E1	DA	
93	1C	23	
94 to CF	Fixed data-1 (Initialized data)		
D0	Fixed data-2		
D1			
D2 to FF	Fixed data-1 (Initialized data)		

4. D Page table**Note 1:** Check that the data of page: 0, address: 10 is "00".**Note 2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the A, D Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of A, D Page Data")

Address	Initial value		Remark
	NTSC	PAL	
10	00	00	Test mode
11	Fixed data-1 (Initialized data)		
12	Fixed data-2		
13 to 15	Fixed data-1 (Initialized data)		
16	Fixed data-2		
17 to 21	Fixed data-1 (Initialized data)		
22	Fixed data-2		
23			
24			
25			
26			
27 to 29	Fixed data-1 (Initialized data)		
2A	Fixed data-2		
2B			
2C to 36	Fixed data-1 (Initialized data)		
37	Fixed data-2		
38, 39	Fixed data-1 (Initialized data)		
3A	Fixed data-2		
3B to 50	Fixed data-1 (Initialized data)		
51	Fixed data-2		
52			
53			
54			
55, 56	Fixed data-1 (Initialized data)		
57	Fixed data-2		
58	Fixed data-1 (Initialized data)		
59	Fixed data-2		
5A			
5B			
5C			
5D			
5E			
5F			
60	Fixed data-2 (TRV950/TRV950E)		
61	Fixed data-1 (TRV940/TRV940E)		
62 to 7F	Fixed data-1 (Initialized data)		

1-2-2. Initialization of 8, C Page Data

Note: Check that the data of page: 0, address: 10 is "00".

1. Initializing of 8, C Page Data

Note1: If "Initialization of Pages 8, C" is executed, all data on pages 8, C are initialized. (Only an individual page cannot be initialized)

Note 2: If the 8, C page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of 8, C page data
- 2) Color electronic viewfinder system adjustments
- 3) LCD system adjustments
- 4) Node unique ID No. input
- 5) Servo, RF system adjustments
- 6) Video system adjustments

Note 3: Check that the voltage of power supply is $6.0 \pm 0.1\text{Vdc}$.

Adjustment Page	8
Adjustment Address	00 to A3
Adjustment Page	C
Adjustment Address	10 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	3	81		Check the data changes to "00".
4	3	80	0C	Press PAUSE button.
5	3	80		Check the data changes to "1C".
6				Perform "Modification of 8, C Page Data"

2. Modification of 8, C Page Data

If the 8, C page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note: If copy the data built in the different model, the camcorder may not operate.
- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 4) Check that the data of adjustment addresses is the initial value.
If not, change the data to the initial value.

Processing after Completing Modification 8, C page data:

Order	Page	Address	Data	Procedure
1	2	00	29	
2	2	01	29	Press PAUSE button.

3. 8 Page table**Note 1:** Check that the data of page: 0, address: 10 is "00".**Note 2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of 8, C Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to 2E			Fixed data-1 (Initialized data)
2F			Fixed data-2
30 to 3A			Fixed data-1 (Initialized data)
3B			Fixed data-2
3C to 49			Fixed data-1 (Initialized data)
4A			Fixed data-2
4B to 51			Fixed data-1 (Initialized data)
52			Fixed data-2
53 to 79			Fixed data-1 (Initialized data)
7A	Fixed data-2		
7B			
7C			
7D			
7E			
7F			
80			
81			
82			
83			
84			
85 to 89			Fixed data-1 (Initialized data)
8A			Fixed data-2
8B			Fixed data-1 (Initialized data)
8C	08	08	Node unique ID No. input
8D	00	00	
8E	46	46	
8F	01	01	
90	02	02	
91	00	00	
92	00	00	
93	00	00	
94 to 99			Fixed data-1 (Initialized data)
9A			Fixed data-2
9B			
9C			Fixed data-1 (Initialized data)
9D	Fixed data-2		
9E			
9F			
A0			
A1			
A2			
A3			
A3			Fixed data-1 (Initialized data)

4. C Page table**Note 1:** Check that the data of page: 0, address: 10 is "00".**Note 2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of 8, C Page Data")

Address	Initial value		Remark
	NTSC	PAL	
10	EE	EE	Switching position adj.
11	00	00	
12	00	00	
13	00	00	
14, 15			Fixed data-1 (Initialized data)
16	E0	E0	CAP FG duty adj.
17			Fixed data-1 (Initialized data)
18	2A	2A	APC & AEQ adj.
19	2A	2A	
1A			Fixed data-1 (Initialized data)
1B	32	32	APC & AEQ adj.
1C	32	32	
1D			Fixed data-1 (Initialized data)
1E	25	25	AGC center level adj.
1F	3E	3E	PLL f ₀ & LPF f ₀ adj.
20	3E	3E	
21	DC	DC	APC & AEQ adj.
22	99	99	PLL f ₀ & LPF f ₀ adj.
23, 24			Fixed data-1 (Initialized data)
25	88	88	S VIDEO OUT Y level adj.
26	E3	E3	S VIDEO OUT chroma level adj.
27	A1	A1	
28	04	04	Chroma BPF f ₀ adj.
29	20	20	PLL f ₀ & LPF f ₀ adj.
2A, 2B			Fixed data-1 (Initialized data)
2C	03	03	APC & AEQ adj.
2D to 4E			Fixed data-1 (Initialized data)
4F	64	64	Back light adj. (EVF)
50	CA	CA	
51	5D	7D	VCO adj. (EVF)
52	5D	7D	
53			Fixed data-2
54	AC	AC	RGB AMP adj. (EVF)
55			Fixed data-1 (Initialized data)
56	80	80	White balance adj. (EVF)
57	80	80	
58	1D	1D	Contrast adj. (EVF)
59			Fixed data-1 (Initialized data)
5A	Fixed data-2		
5B			
5C			
5D			
5E			
5E			

C Page table

Address	Initial value		Remark
	NTSC	PAL	
5F	Fixed data-2		
60			
61	98	98	VCO adj. (LCD)
62	98	98	
63	91	91	V-COM adj. (LCD)
64	2C	2C	RGB AMP adj. (LCD)
65	Fixed data-1 (Initialized data)		
66	A1	A1	V-COM level adj. (LCD)
67	7F	7F	White balance adj. (LCD)
68	87	87	
69	3F	3F	Contrast adj. (LCD)
6A	Fixed data-2		
6B			
6C			
6D			
6E			
6F			
70			
71	Fixed data-1 (Initialized data)		
72	Fixed data-2		
73 to 75	Fixed data-1 (Initialized data)		
76	Fixed data-2		
77 to 79	Fixed data-1 (Initialized data)		
7A	Fixed data-2		
7B to 80	Fixed data-1 (Initialized data)		
81	Fixed data-2		
82			
83, 84	Fixed data-1 (Initialized data)		
85	Fixed data-2		
86 to 88	Fixed data-1 (Initialized data)		
89	Fixed data-2		
8A			
8B	Fixed data-1 (Initialized data)		
8C	Fixed data-2		
8D to A2	Fixed data-1 (Initialized data)		
A3	Fixed data-2		
A4 to A9	Fixed data-1 (Initialized data)		
AA	Fixed data-2		
AB	Fixed data-1 (Initialized data)		
AC	Fixed data-2		
AD			
AE			
AF to C0	Fixed data-1 (Initialized data)		
C1	Fixed data-2		
C2			
C3			
C4			

Address	Initial value		Remark
	NTSC	PAL	
C5	Fixed data-2		
C6			
C7, C8	Fixed data-1 (Initialized data)		
C9	Fixed data-2		
CA			
CB			
CC			
CD			
CE			
CF, D0	Fixed data-1 (Initialized data)		
D1	Fixed data-2		
D2			
D3			
D4	Fixed data-1 (Initialized data)		
D5	Fixed data-2		
D6			
D7	Fixed data-1 (Initialized data)		
D8	Fixed data-2		
D9			
DA			
DB			
DC			
DD			
DE			
DF to E1	Fixed data-1 (Initialized data)		
E2	Fixed data-2		
E3			
E4, E5	Fixed data-1 (Initialized data)		
E6	Fixed data-2		
E7	Fixed data-1 (Initialized data)		
E8	Fixed data-2		
E9 to F3	Fixed data-1 (Initialized data)		
F4	00	00	Emergency memory address
F5	00	00	
F6	00	00	
F7	00	00	
F8	00	00	
F9	00	00	
FA	00	00	
FB	00	00	
FC	00	00	
FD	00	00	
FE	00	00	
FF	00	00	

1-2-3. Initialization of E, F, 1E, 1F Page Data

Note: If reading/writing data on pages 1E, 1F, set data: 01 to page: 0, address: 10, and then select pages E, F. By this data setting, the pages 1E, 1F can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

1. Initializing of E, F, 1E, 1F Page Data

Note 1: If "Initialization of Pages E, F, 1E, 1F" is executed, all data on pages E, F, 1E, 1F are initialized. (Only an individual page cannot be initialized)

Note 2: If the E, F, 1E, 1F page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of E, F, 1E, 1F page data
- 2) Camera system adjustments

Note 3: Check that the voltage of power supply is 6.0 ± 0.1 Vdc.

Note 4: NTSC model: DCR-TRV940/TRV950

PAL model: DCR-TRV940E/TRV950E

Adjustment Page	E
Adjustment Address	00 to FF
Adjustment Page	F
Adjustment Address	10 to FF
Adjustment Page	1E
Adjustment Address	00 to C3
Adjustment Page	1F
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	6	01		Set the following data, and press PAUSE button. 2D: NTSC model 2F: PAL model
4	6	03	01	Press PAUSE button.
5	6	02		Check the data changes to "01".
6				Perform "Modification of E, F, 1E, 1F Page Data"

2. Modification of E, F, 1E, 1F Page Data

If the E, F, 1E, 1F page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) If modification of data on pages E, F, set data: 01 to page: 0, address: 00, and then select pages E, F.
- 3) If modification of data on pages 1E, 1F, set data: 01 to page: 0, address: 10, and then select pages E, F. After the modification of data finished, return the data on page: 0, address: 10 to "00".
- 4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
Note: If copy the data built in the different model, the camcorder may not operate.
- 5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification E, F, 1E, 1F page data:

Order	Page	Address	Data	Procedure
1	0	10	00	
2	2	00	29	
3	2	01	29	Press PAUSE button.
4				Perform "66MHz/54MHz Origin Oscillation Adjustment" of "CAMERA SYSTEM ADJUSTMENTS"

3. E Page table**Note 1:** Check that the data of page: 0, address: 10 is “00”.**Note 2:** Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1E, 1F Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1E, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 10	Fixed data-1 (Initialized data)		
11	Fixed data-2		
12			
13			
14			
15 to 19	Fixed data-1 (Initialized data)		
1A	Fixed data-2		
1B, 1C	Fixed data-1 (Initialized data)		
1D	Fixed data-2		
1E			
1F			
20	Fixed data-1 (Initialized data)		
21	Fixed data-2		
22			
23			
24 to 2A	Fixed data-1 (Initialized data)		
2B	Fixed data-2		
2C			
2D to 33	Fixed data-1 (Initialized data)		
34	Fixed data-2		
35 to 38	Fixed data-1 (Initialized data)		
39	Fixed data-2		
3A			
3B, 3C	Fixed data-1 (Initialized data)		
3D	Fixed data-2		
3E			
3F to 57	Fixed data-1 (Initialized data)		
58	Fixed data-2		
59			
5A to 5D	Fixed data-1 (Initialized data)		
5E	Fixed data-2		
5F, 60	Fixed data-1 (Initialized data)		
61	Fixed data-2		
62			
63			
64			
65			
66			
67, 68	Fixed data-1 (Initialized data)		
69	Fixed data-2		
6A	Fixed data-1 (Initialized data)		
6B	Fixed data-2		
6C to 6E	Fixed data-1 (Initialized data)		

Address	Initial value		Remark
	NTSC	PAL	
6F	Fixed data-2		
70			
71	Fixed data-1 (Initialized data)		
72	Fixed data-2		
73	Fixed data-1 (Initialized data)		
74	Fixed data-2		
75	Fixed data-1 (Initialized data)		
76	Fixed data-2		
77, 78	Fixed data-1 (Initialized data)		
79	Fixed data-2		
7A			
7B			
7C			
7D to 94	Fixed data-1 (Initialized data)		
95	Fixed data-2		
96			
97 to B2	Fixed data-1 (Initialized data)		
B3	Fixed data-2		
B4 to C6	Fixed data-1 (Initialized data)		
C7	Fixed data-2		
C8			
C9			
CA to CC	Fixed data-1 (Initialized data)		
CD	Fixed data-2		
CE			
CF to E2	Fixed data-1 (Initialized data)		
E3	Fixed data-2		
E4			
E5 to FF	Fixed data-1 (Initialized data)		

4. F Page table**Note 1:** Check that the data of page: 0, address: 10 is "00".**Note 2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
10	40	40	66MHz/54MHz origin oscillation adj.
11, 12	Fixed data-1 (Initialized data)		
13	80	80	Hall adj.
14	90	90	
15	18	18	
16	75	75	
17	4A	4A	
18	89	89	
19	80	80	MAX GAIN adj.
1A	80	80	LV standard data input
1B	7A	7A	
1C	80	80	F No. & ND light quality standard data input
1D	80	80	
1E	80	80	
1F	80	80	
20	80	80	
21	80	80	
22	80	80	
23	80	80	
24 to 29	Fixed data-1 (Initialized data)		
2A	14	14	AWB standard data input
2B	17	17	
2C	04	04	
2D	79	79	
2E to 35	Fixed data-1 (Initialized data)		
36	2D	2D	Strobe white balance adj.
37	64	64	
38	00	01	Color reproduction adj.
39	EF	E8	
3A	1E	1B	
3B	2F	24	
3C	Fixed data-2		
3D			
3E			
3F			
40	0A	0A	Auto white balance adj.
41	19	19	
42	07	07	
43	DD	DD	
44 to 5F	Fixed data-1 (Initialized data)		
60	11	11	Flange back adj.
61	EB	EB	
62	53	53	

Address	Initial value		Remark
	NTSC	PAL	
63	0A	0A	Flange back adj.
64	1E	1E	
65	AC	AC	
66	00	00	
67	00	00	
68	00	00	
69	00	00	
6A	86	86	
6B	19	19	
6C	19	19	
6D	38	38	
6E	00	00	
6F	00	00	
70	00	00	MR adj./Flange back adj.
71	80	80	MR adj.
72	80	80	
73	80	80	
74	80	80	
75	40	40	
76	C0	C0	
77	40	40	
78	C0	C0	
79	40	40	
7A	C0	C0	
7B	40	40	Hologram AF output adj.
7C	C0	C0	
7D	20	20	
7E	00	00	
7F	00	00	
80	00	00	
81	00	00	PSD sensor gain adj.
82	00	00	
83	00	00	Angular velocity sensor sensitivity adj.
84	80	80	
85	80	80	
86	50	50	Strobe light level adj.
87	50	50	
88, 89	Fixed data-1 (Initialized data)		
8A	01	01	Mechanical shutter adj.
8B	E0	E0	
8C	80	80	
8D	80	80	
8E	80	80	
8F	20	20	
90	00	00	Mechanical shutter adj.
91	00	00	
92	00	00	
93	00	00	

F Page table

Address	Initial value		Remark
	NTSC	PAL	
94	00	00	Mechanical shutter adj.
95	00	00	
96	00	00	
97	00	00	
98	00	00	
99	00	00	
9A	00	00	
9B	00	00	
9C	00	00	
9D	00	00	
9E	00	00	
9F	00	00	
A0	00	00	
A1	00	00	
A2	00	00	
A3	00	00	
A4	00	00	
A5	00	00	
A6 to B3	Fixed data-1 (Initialized data)		
B4	Fixed data-2		
B5	Fixed data-1 (Initialized data)		
B6	Fixed data-2		
B7			
B8 to C4	Fixed data-1 (Initialized data)		
C5	Fixed data-2		
C6 to FF	Fixed data-1 (Initialized data)		

5. 1E Page table

Note 1: If reading/writing data on pages 1E, set data: 01 to page: 0, address: 10, and then select pages E. By this data setting, the pages 1E can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1E, 1F Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1E, 1F Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00			Fixed data-2
01 to 07			Fixed data-1 (Initialized data)
08			Fixed data-2
09			
0A to 14			Fixed data-1 (Initialized data)
15			Fixed data-2
16 to 1F			Fixed data-1 (Initialized data)
20			Fixed data-2
21			Fixed data-1 (Initialized data)
22			Fixed data-2
23			
24			
25			
26			
27 to 2B			Fixed data-1 (Initialized data)
2C			Fixed data-2
2D			
2E			
2F to 33			Fixed data-1 (Initialized data)
34			Fixed data-2
35 to 48			Fixed data-1 (Initialized data)
49			Fixed data-2
4A, 4B			Fixed data-1 (Initialized data)
4C			Fixed data-2
4D			
4E			Fixed data-1 (Initialized data)
4F			Fixed data-2
50 to 53			Fixed data-1 (Initialized data)
54			Fixed data-2
55			
56 to 5B			Fixed data-1 (Initialized data)
5C			Fixed data-2
5D			Fixed data-1 (Initialized data)
5E			Fixed data-2
5F			
60 to 63			Fixed data-1 (Initialized data)
64			Fixed data-2
65			
66 to 69			Fixed data-1 (Initialized data)
6A			Fixed data-2

Address	Initial value		Remark
	NTSC	PAL	
6B			Fixed data-2
6C			
6D			
6E			
6F to 71			Fixed data-1 (Initialized data)
72			Fixed data-2
73			
74			Fixed data-1 (Initialized data)
75			Fixed data-2
76			
77			
78			
79			
7A to B4			Fixed data-1 (Initialized data)
B5			Fixed data-2
B6 to C3			Fixed data-1 (Initialized data)

6. 1F Page table

Note 1: If reading/writing data on pages 1F, set data: 01 to page: 0, address: 10, and then select pages F. By this data setting, the pages 1F can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to “00”.

Note 2: Fixed data-1: Initialized data. (Refer to “1. Initializing the E, F, 1E, 1F Page Data”)

Fixed data-2: Modified data. (Refer to “2. Modification of E, F, 1E, 1F Page Data”)

Address	Initial value		Remark
	NTSC	PAL	
00 to 0A	Fixed data-1 (Initialized data)		
0B	Fixed data-2		
0C			
0D			
0E			
0F			
10			
11			
12 to 16	Fixed data-1 (Initialized data)		
17	Fixed data-2		
18 to 61	Fixed data-1 (Initialized data)		
62	Fixed data-2		
63			
64 to 67	Fixed data-1 (Initialized data)		
68	Fixed data-2		
69 to 6C	Fixed data-1 (Initialized data)		
6D	Fixed data-2		
6E to B8	Fixed data-1 (Initialized data)		
B9	Fixed data-2		
BA, BB	Fixed data-1 (Initialized data)		
BC	Fixed data-2		
BD			
BE to C5	Fixed data-1 (Initialized data)		
C6	Fixed data-2		
C7 to CF	Fixed data-1 (Initialized data)		
D0	Fixed data-2		
D1 to D9	Fixed data-1 (Initialized data)		
DA	Fixed data-2		
DB			
DC	Fixed data-1 (Initialized data)		
DD	Fixed data-2		
DE			
DF to E7	Fixed data-1 (Initialized data)		
E8	Fixed data-2		
E9			
EA to EC	Fixed data-1 (Initialized data)		
ED	Fixed data-2		
EE			
EF to F4	Fixed data-1 (Initialized data)		
F5	Fixed data-2		
F6 to FF	Fixed data-1 (Initialized data)		

1-2-4. Initialization of B, 1B Page Data

Note: If reading/writing data on pages 1B, set data: 01 to page: 0, address: 10, and then select pages B. By this data setting, the pages 1B can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

1. Initializing of B, 1B Page Data

Note 1: If "Initialization of Pages B, 1B" is executed, all data on pages B, 1B are initialized. (Only an individual page cannot be initialized)

Note 2: If the B, 1B page data has been initialized, the following adjustments need to be performed again.

- 1) Modification of B, 1B page data

Note 3: Check that the voltage of power supply is 6.0 ± 0.1 Vdc.

Adjustment Page	B
Adjustment Address	00 to FF
Adjustment Page	1B
Adjustment Address	00 to FF

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	5	02	FF	
4	5	01	F3	Press PAUSE button.
5	5	00	01	Press PAUSE button.
6	5	02		Check the data changes to "00".
7	5	0E	00	Press PAUSE button.
8	5	03	20	Press PAUSE button.
9	5	01	FA	Press PAUSE button.
10	5	00	01	Press PAUSE button.
11	5	0E		Check the data changes to "01".
12				Turn off the power supply, then turn on them again.
13				Perform "Modification of B Page Data"

2. Modification of B, 1B Page Data

If the B, 1B page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

Modifying Method:

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- 2) If modification of data on pages B, set data: 01 to page: 0, address: 00, and then select pages B.
- 3) If modification of data on pages 1B, set data: 01 to page: 0, address: 10, and then select pages B. After the modification of data finished, return the data on page: 0, address: 10 to "00".
- 4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note: If copy the data built in the different model, the camcorder may not operate.

- 5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- 6) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification B page data:

Order	Page	Address	Data	Procedure
1	2	00	29	
2	2	01	29	Press PAUSE button.

3. B Page table

Note 1: Check that the data of page: 0, address: 10 is "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the B, 1B Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of B, 1B Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to AF			Fixed data-1 (Initialized data)
B0			Fixed data-2 (TRV950/TRV950E)
			Fixed data-1 (TRV940/TRV940E)
B1 to FF			Fixed data-1 (Initialized data)

4. 1B Page table

Note 1: If reading/writing data on pages 1B, set data: 01 to page: 0, address: 10, and then select pages B. By this data setting, the pages 1B can be selected.

After the data reading/writing finished, return the data on page: 0, address: 10 to "00".

Note 2: Fixed data-1: Initialized data. (Refer to "1. Initializing the B, 1B Page Data")

Fixed data-2: Modified data. (Refer to "2. Modification of B, 1B Page Data")

Address	Initial value		Remark
	NTSC	PAL	
00 to FF			Fixed data-1 (Initialized data)

5. Initializing of Network Setting Data (DCR-TRV950/TRV950E)

Initializing method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	00	
3	5	01	E7	Press PAUSE button.
4	5	09	80	Press PAUSE button.
5	5	0A		Set the following data, and press PAUSE button. 01: CND, E, HK, AU model 03: US model 04: AEP, UK, EE, NE, RU model
6	5	00	01	Press PAUSE button.
7	5	0E		Check the data is "00".

• Abbreviation

AUS : Australian model	HK : Hong Kong model
CND : Canadian model	NE : North European model
EE : East European model	RU : Russian model



1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, check that the specified values of “VIDEO SYSTEM ADJUSTMENTS” are satisfied. (Except “66MHz/54MHz Origin Oscillation Adjustment”)
Check that the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set the data “00”.

1. 66MHz/54MHz Origin Oscillation Adjustment (VC-288 board)

Set the frequency of the clock for synchronization.

If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required
Measurement Point	Pin ⑥ of IC1202 (R1209)
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	10
Specified value	$f = 33000000 \pm 165 \text{ Hz (NTSC)}$ $f = 27000000 \pm 135 \text{ Hz (PAL)}$

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: NTSC model: DCR-TRV940/TRV950

PAL model: DCR-TRV940E/TRV950E

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	F	10		Change the data and set the frequency (f) to the specified value.
3	F	10		Press PAUSE button.
4	0	01	00	

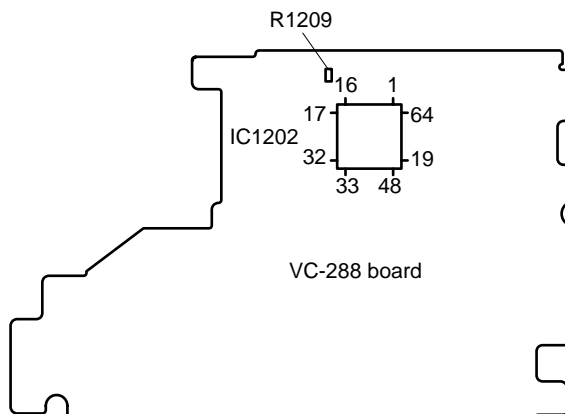


Fig. 6-1-9

2. HALL Adjustment *RadarW*

For detecting the position of lens iris and ND filter, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	Displayed data of page: 1 (Note 1)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	13 to 18
Specified value 1	14 to 18
Specified value 2	84 to 88
Specified value 3	84 to 88
Specified value 4	14 to 18

Note 1: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1 : XX : XX

└── IRIS displayed data
└── ND displayed data

Note 2: Check that the data of page: 0, address: 10 is “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”.

If not, turn the power of unit OFF/ON.

Switch setting

1) POWER CAMERA

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	94	16	
3	6	95	86	
4	6	01	6D	Press PAUSE button. (Note 4)
5	6	02		Check the data changes to “01”.
6	6	01	00	Press PAUSE button.

Note 4: The adjustment data will be automatically input to page: F, address: 13 to 18.

Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	
2	6	01	01	Press PAUSE button.
3	1			Check that the IRIS displayed data (Note 1) satisfied the specified value 1.
4	6	01	03	Press PAUSE button.
5	1			Check that the IRIS displayed data (Note 1) satisfied the specified value 2.
6	6	01	69	Press PAUSE button.
7	1			Check that the ND displayed data (Note 1) satisfied the specified value 3.
8	6	01	6B	Press PAUSE button.
9	1			Check that the ND displayed data (Note 1) satisfied the specified value 4.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	94	00	
3	6	95	00	
4	0	03	00	
5	0	01	00	

3. MR Adjustment

The inner focus lens MR adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Not required
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	70 to 7C
Specified value 1	40 to C0
Specified value 2	03 to 78
Specified value 3	88 to F8

Note 1: Perform the adjustment with the lens in horizontal state.

Note 2: Perform “Flange Back Adjustment” after this adjustment.

Note 3: Check that the data of page: 0, address: 10 is “00”.

Note 4: Check that the data of page: 6, address: 02 is “00”.

If not, turn the power of unit OFF/ON.

Switch setting

1) POWER CAMERA

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	BD	Press PAUSE button. (Note 5)
3	6	02		Check the data changes to “01”.
4	F	71 72 73 74		Check that the data of each address satisfied the specified value 1.
5	F	75 77 79 7B		Check that the data of each address satisfied the specified value 2.
6	F	76 78 7A 7C		Check that the data of each address satisfied the specified value 3.

Note 5: The adjustment data will be automatically input to page: F, address: 70 to 7C.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	

4. Flange Back Adjustment **RadarW**
(Using the minipattern box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for minipattern box (Note 1)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	60 to 70
Specified value	Data of page: F, address: 6F is “00” to “0E”

- Note 1:** Dark Siemens star chart.
Note 2: Perform “HALL Adjustment” “MR Adjustment” before this adjustment.
Note 3: Perform the adjustment with the lens in horizontal state.
Note 4: Check that the data of page: 0, address: 10 is “00”.
Note 5: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Switch setting

- 1) POWER CAMERA

Preparations before adjustments:

- 1) The minipattern box is installed as shown in the following figure.
Note 6: The attachment lenses are not used.
2) Install the minipattern box so that the distance between it and the front of lens of camcorder is less than 3 cm.
3) Make the height of minipattern box and the camera equal.
4) Check the output voltage of the regulated power supply is the specified voltage ± 0.01 Vdc.
5) Check that the center of Siemens star chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	13	Press PAUSE button.
3	6	01	27	Press PAUSE button. (Note 7)
4	6	02		Check the data changes to “01”.
5	F	6F		Check the data is “00” to “0E”.

Note 7: The adjustment data will be automatically input to page: F, address: 60 to 70.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	
3				Turn OFF the main power supply.
4				Perform “Flange Back Check”.

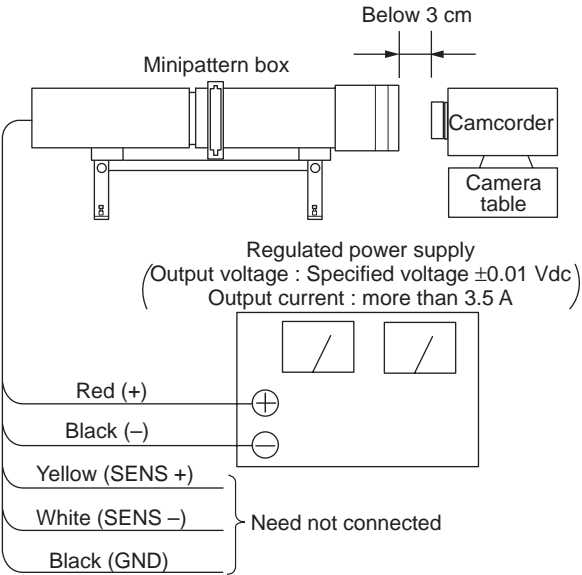


Fig. 6-1-10

5. Flange Back Adjustment (Using the flange back adjustment chart and Subject More than 500 m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

5-1. Flange Back Adjustment (1) **RadarW**

Subject	Flange back adjustment chart (2.0 m from the front of lens) (Luminance: 300 to 400 lux)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	60 to 70
Specified value	Data of page: F, address: 6F is "00" to "0E"

Note 1: Perform "HALL Adjustment" and "MR Adjustment" before this adjustment.

Note 2: Perform the adjustment with the lens in horizontal state.

Note 3: Check that the data of page: 0, address: 10 is "00".

Note 4: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.

Switch setting

1) POWER CAMERA

Preparations before adjustments:

1) Check that the center of Flange back adjustment chart meets the center of shot image screen with the zoom lens at TELE end and WIDE end respectively.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	13	Press PAUSE button.
3	6	01	15	Press PAUSE button. (Note 5)
4	6	02		Check the data changes to "01".
5	F	6F		Check the data is "00" to "0E".

Note 5: The adjustment data will be automatically input to page: F, address: 60 to 70.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	
3				Turn OFF the main power supply.
4				Perform "Flange Back Adjustment (2)".

5-2. Flange Back Adjustment (2) **RadarW**

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500 m away (Subject with clear contrast such as buildings, etc.)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	60 to 70
Specified value	Data of page: F, address: 6F is "00" to "0E"

Note 1: Perform the adjustment with the lens in horizontal state.

Note 2: Check that the data of page: 0, address: 10 is "00".

Note 3: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.

Switch setting

1) POWER CAMERA

Preparations before adjustments:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away.
(Subjects with clear contrast such as building, etc.)
(Nearby subjects less than 500 m away should not be in the screen)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	13	Press PAUSE button.
3				Place ND filter on the lens so that the optimum image is obtain.
4	6	01	29	Press PAUSE button. (Note 4)
5	6	02		Check the data changes to "01".
6	F	6F		Check the data is "00" to "0E".

Note 4: The adjustment data will be automatically input to page: F, address: 60 to 70.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	
3				Turn OFF the main power supply.
4				Perform "Flange Back Check".

6. Flange Back Check

Subject	Siemens star (2.0 m from the front of the lens) (Luminance: 300 to 400 lux)
Measurement Point	Check operation on monitor TV
Measuring Instrument	
Specified value	Focused at the TELE end and WIDE end

Note 1: Check that the data of page: 0, address: 10 is “00”.

Switch setting

1) POWER CAMERA

Note 2: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page: 1 of the adjusting remote commander.

1 : 00 : XX

Odd: Focused
Even: Unfocused

Preparations before adjustments:

1) Place the Siemens star 2.0 m from the front of the lens.

Checking method:

Order	Page	Address	Data	Procedure
1	6	40	01	
2	6	41	01	
3				Shoot the Siemens star with the zoom TELE end.
4				Turn on the auto focus.
5	0	03	0F	
6	1			Check that the lens is focused. (Note 2)
7	6	21	10	
8				Shoot the Siemens star with the zoom WIDE end.
9				Observe the TV monitor and check that the lens is focused.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	21	00	
2	6	40	00	
3	6	41	00	
4	0	03	00	

7. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.0 m from the front of lens)
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope and monitor TV
Specified Value	A=B, C=D, E=F

Switch setting

- 1) POWER CAMERA
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF
- 4) FOCUS MAN

Setting method:

Order	Procedure
1	Adjust the zoom and the camera direction, and set the specified position.
2	Mark the position of the picture frame on the monitor TV, and adjust the picture frame to the this position in following adjustment using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

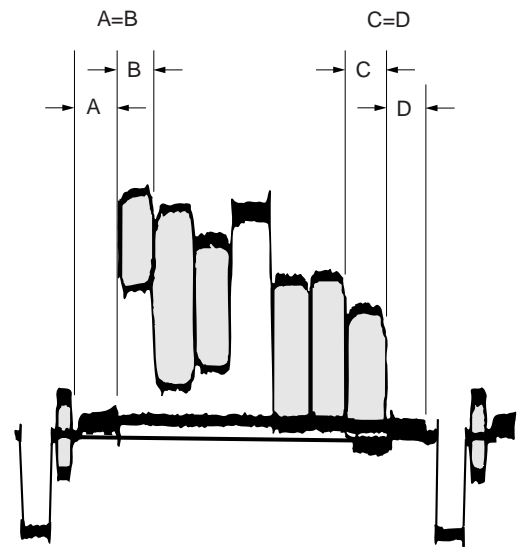


Fig. 6-1-11

2. Vertical period

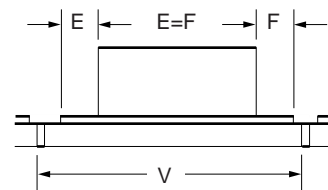


Fig. 6-1-12

Check on the monitor TV (Underscanned mode)

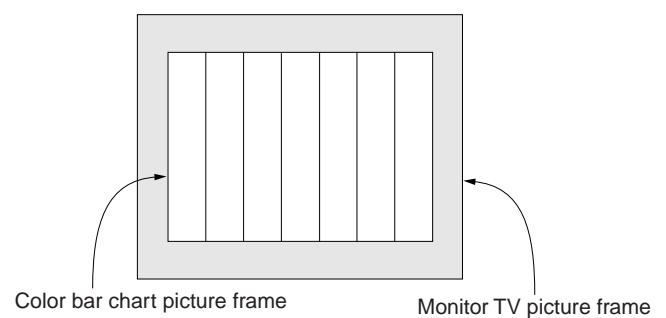


Fig. 6-1-13

8. AWB Standard Data Input 

Adjust the white balance reference at 3200K.

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	2A to 2D

Note 1: “AWB Standard Data Input” is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Switch setting

- 1) POWER CAMERA
2) DIGITAL ZOOM (Menu setting) OFF
3) STEADY SHOT (Menu setting) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	11	Press PAUSE button.
3	6	01	0B	Press PAUSE button. (Note 4)
4	6	02		Check the data changes to “01”.

Note 4: The adjustment data will be automatically input to page: F, address: 2A to 2D.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	

9. MAX GAIN Adjustment 

Setting the minimum illumination.

If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	19

Note 1: Perform “AWB Standard Data Input” before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Note 4: NTSC model: DCR-TRV940/TRV950
PAL model: DCR-TRV940E/TRV950E

Switch setting

- 1) POWER CAMERA
2) DIGITAL ZOOM (Menu setting) OFF
3) STEADY SHOT (Menu setting) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	96		Set the following data 32: NTSC model 19: PAL model
3	6	97	00	
4	6	01	6F	Press PAUSE button. (Note 5)
5	6	02		Check the data changes to “01”.

Note 5: The adjustment data will be automatically input to page: F, address: 19.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	96	00	
2	6	97	00	
3	6	01	00	Press PAUSE button.
4	0	01	00	

10. F No. & ND Light Quality Standard Data Input

Correct the lens iris and the dispersion of the ND filter light quantity.

Subject	Clear chart (All white) (Zoom lens at WIDE end) (Note 2)
Adjustment Page	F
Adjustment Address	1C to 23

Note 1: Perform “Mechanical Shutter Adjustment” after this adjustment.

Note 2: With the ZOOM at WIDE end, set the distance where the clear chart is shot with all-white signal.

Note 3: Check that the data of page: 0, address: 10 is “00”.

Note 4: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Switch setting

- 1) POWER CAMERA
- 2) ZOOM WIDE end
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	30	01	
3	6	01	BB	Press PAUSE button. (Note 5)
4	6	02		Check the data changes to “01”.

Note 5: The adjustment data will be automatically input to page: F, address: 1C to 23.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	30	00	
3	0	01	00	

11. LV Standard Data Input

Adjust the normal coefficient of the light value.

Subject	Clear chart (Color reproduction adjustment frame)
Measurement Point	Displayed data of page: 1 (Note 4)
Measuring Instrument	Adjusting remote commander
Adjustment Page	F
Adjustment Address	1A, 1B
Specified Value	0FE0 to 1020

Note 1: Perform “AWB Standard Data Input” before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Note 4: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1 : XX : XX
_____ Displayed data

Switch setting

- 1) POWER CAMERA
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	30	01	
3	6	01	0D	Press PAUSE button. (Note 5)
4	6	02		Check the data changes to “01”.
5	6	04	1E	
6	1			Check that the displayed data (Note 4) satisfied the specified value. (Note 6)

Note 5: The adjustment data will be automatically input to page: F, address: 1A, 1B.

Note 6: Retry adjustment if the displayed data did not satisfy the specified value.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	04	00	
3	6	30	00	
4	0	01	00	

12. Auto White Balance Adjustment 

Adjust to the proper auto white balance output data.

If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Adjustment Page	F
Adjustment Address	40 to 43

Note 1: “Auto White Balance Adjustment” is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Note 3: Check that the data of page: 6, address: 02 is “00”.

If not, turn the power of unit OFF/ON.

Switch setting

- 1) POWER CAMERA
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1				Place the C14 filter on the lens.
2	0	01	01	
3	6	01	83	Press PAUSE button.
4	6	01	81	Press PAUSE button. (Note 4)
5	6	02		Check the data changes to “01”.

Note 4: The adjustment data will be automatically input to page: F, address: 40 to 43.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	
3				Remove the C14 filter on the lens.

13. Auto White Balance Check 

Subject	Clear chart (Color reproduction adjustment frame)	
Filter	Filter C14 for color temperature correction	
	ND filter 1.0, 0.4 and 0.1	
Measurement Point	Video terminal of A/V jack (75 Ω terminated)	Displayed data of page: 1 (Note 2)
Measuring Instrument	Vectorscope	Adjusting remote commander
Specified Value	Fig. 6-1-14 (A) and (B)	8000 to 8BC0

Note 1: Perform “Auto White Balance Adjustment” before this adjustment.

Note 2: The right four digits of the page: 1 displayed data of the adjusting remote commander.

1 : XX : XX

└──────────┘ Displayed data

Note 3: Check that the data of page: 0, address: 10 is “00”.

Switch setting

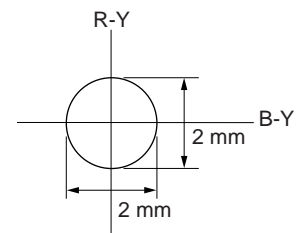
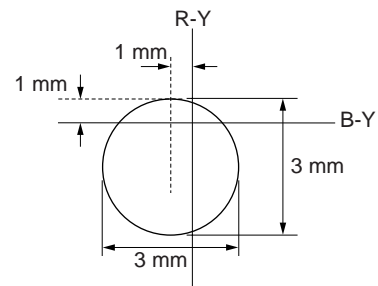
- 1) POWER CAMERA
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF

Checking method:

Order	Page	Address	Data	Procedure
1				Check that the lens is not covered with either filter.
INDOOR luminance point check				
2	6	01	0F	Press PAUSE button.
3				Check that the center of the white luminance point within the circle shown Fig. 6-1-14. (A)
4	6	01	00	Press PAUSE button.
OUTDOOR luminance point check				
5				Place the C14 filter on the lens.
6	6	01	3F	Press PAUSE button.
7				Check that the center of the white luminance point within the circle shown Fig. 6-1-14. (B)
8	6	01	00	Press PAUSE button.
Data check				
9				Remove the C14 filter, and place the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.
10	0	03	06	
11	1			Check that the displayed data (Note 2) satisfied the specified value.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	03	00	
3				Remove the ND filter 1.5 (1.0 + 0.4 + 0.1) on the lens.

**Fig. 6-1-14 (A)****Fig. 6-1-14 (B)**

14. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Vectorscope, Oscilloscope
Adjustment Page	F
Adjustment Address	38 to 3B
Specified Value	All color luminance points should settle within each color reproduction frame.

- Note 1:** NTSC model: DCR-TRV940/TRV950
PAL model: DCR-TRV940E/TRV950E
- Note 2:** “Color Reproduction Adjustment” is available only once after the power is turned on. Turn the power off, then on again if the adjustment is retried.
- Note 3:** Check that the data of page: 0, address: 10 is “00”.
- Note 4:** Check that the data of page: 6, address: 02 is “00”.
If not, turn the power of unit OFF/ON.

Switch setting

- 1) POWER CAMERA
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	01	3D	Press PAUSE button.
3	6	9D		Change the data and set the white level (A) of color bar to the following value. (Fig. 6-1-15) NTSC: 90IRE (642.6 mVp-p) PAL: 630 mVp-p
4	6	01	61	Press PAUSE button. (Note 5)
5	6	02		Check the data changes to “01”.
6				Adjust the GAIN and PHASE of the vectorscope, and set to the burst luminance point to the burst position of color reproduction frame.
7				Check the each color luminance point is in each color reproduction frame.

Note 5: The adjustment data will be automatically input to page: F, address: 38 to 3B.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	9D	00	
3	0	01	00	

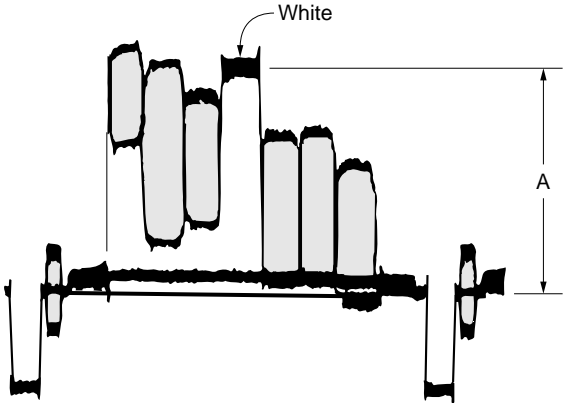
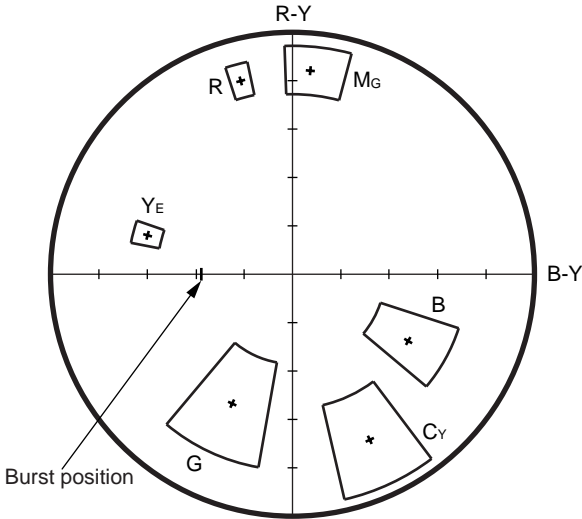


Fig. 6-1-15

NTSC model



PAL model

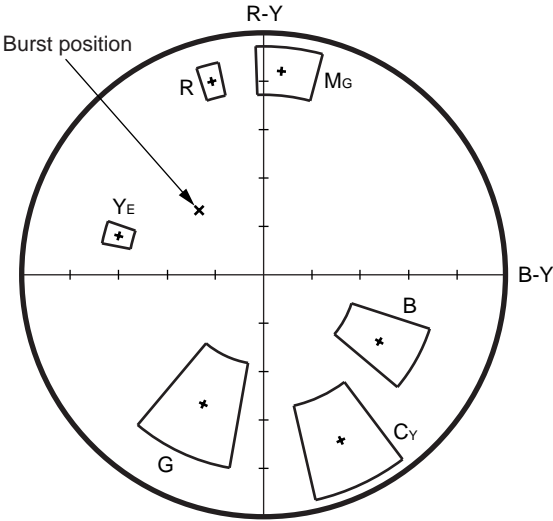


Fig. 6-1-16

15. PSD Sensor Gain Adjustment

Adjust the gain of the PSD sensor for the steady shot.

- Perform the angular velocity sensor sensitivity adjustment only when replacing the angular velocity sensor or lens block. When the microprocessor, circuit, etc. malfunctions, do not perform this adjustment but check operations only.

Note 1: Check that the data of page: 0, address: 10 is "00".

Note 2: NTSC model: DCR-TRV940/TRV950
PAL model: DCR-TRV940E/TRV950E

Switch setting

- POWER CAMERA
- ZOOM TELE end
- DIGITAL ZOOM (Menu setting) OFF
- STEADY SHOT (Menu setting) ON

15-1. PSD Sensor Gain Adjustment (1)

Subject	Pattern A (1.5 m from the front of lens)
Measurement Point	Video terminal of A/V jack
Measuring Instrument	Oscilloscope (V period)
Adjustment Page	F
Adjustment Address	84

Pattern A



A4 size (297 x 210 mm)

Fig. 6-1-17

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	F	84	80	Press PAUSE button.
3	6	01	8F	Press PAUSE button.
4				Shoot the pattern A at the TELE end.
5				Adjust the focus.
6				Measure the falling edge of waveform, SV1 (msec).
7	6	01	91	Press PAUSE button.
8				Measure the falling edge of waveform, SV2 (msec).
9				Calculate D_{SV} using following equations. (decimal calculation) (Note 1) NTSC: $D_{SV} = 2.751 \div (SV2 - SV1)$ PAL: $D_{SV} = 3.298 \div (SV2 - SV1)$

Order	Page	Address	Data	Procedure
10				Calculate D_{84}' using following equations. (decimal calculation) $D_{84}' = 128 \times D_{SV}$
11				Convert D_{84}' to a hexadecimal number, and obtain D_{84} . (Note 2)
12	F	84	D_{84}	Press PAUSE button.

Note 1: Keep a note of D_{SV} value to use at "16. Angular Velocity Sensor Sensitivity Adjustment".

Note 2: Refer to table 6-4-1. "Hexadecimal-decimal conversion table"

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	
3				Check that the steady shot function operates normally.

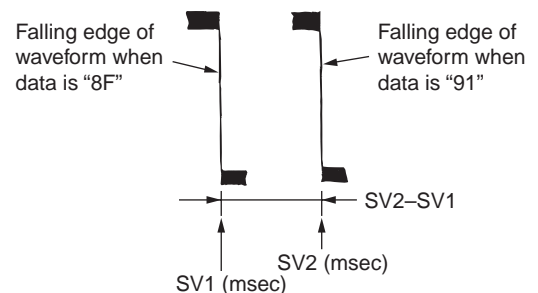
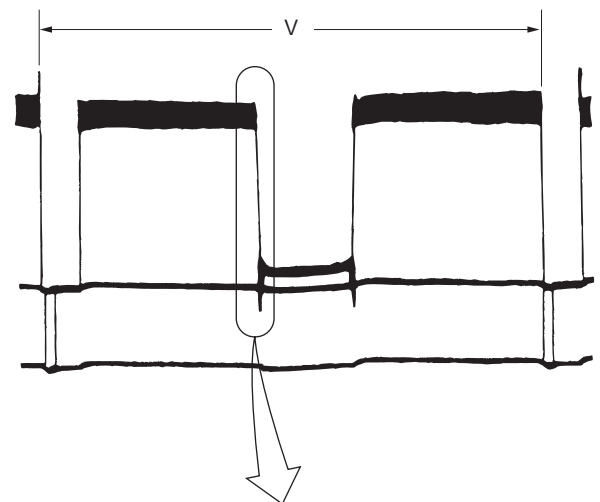


Fig. 6-1-18

15-2. PSD Sensor Gain Adjustment (2)

Subject	Pattern B (1.5 m from the front of lens)
Measurement Point	Video terminal of A/V jack
Measuring Instrument	Oscilloscope (H period)
Adjustment Page	F
Adjustment Address	85

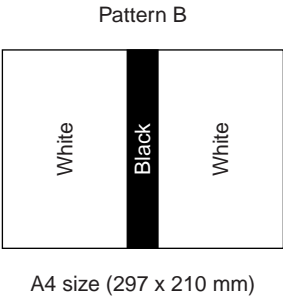


Fig. 6-1-19

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	F	85	80	Press PAUSE button.
3	6	01	8F	Press PAUSE button.
4				Shoot the pattern B at the TELE end.
5				Adjust the focus.
6				Measure the falling edge of waveform, SH1 (μsec).
7	6	01	91	Press PAUSE button.
8				Measure the falling edge of waveform, SH2 (μsec).
9				Calculate D _{SH} using following equations. (decimal calculation) (Note 1) NTSC: $D_{SH} = 7.821 \div (SH1 - SH2)$ PAL: $D_{SH} = 7.876 \div (SH1 - SH2)$
10				Calculate D _{85'} using following equations. (decimal calculation) $D_{85'} = 128 \times D_{SH}$
11				Convert D _{85'} to a hexadecimal number, and obtain D ₈₅ . (Note 2)
12	F	85	D ₈₅	Press PAUSE button.

- Note 1:** Keep a note of D_{SH} value to use at “16. Angular Velocity Sensor Sensitivity Adjustment”.
- Note 2:** Refer to table 6-4-1. “Hexadecimal-decimal conversion table”

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	0	01	00	
3				Check that the steady shot function operates normally.

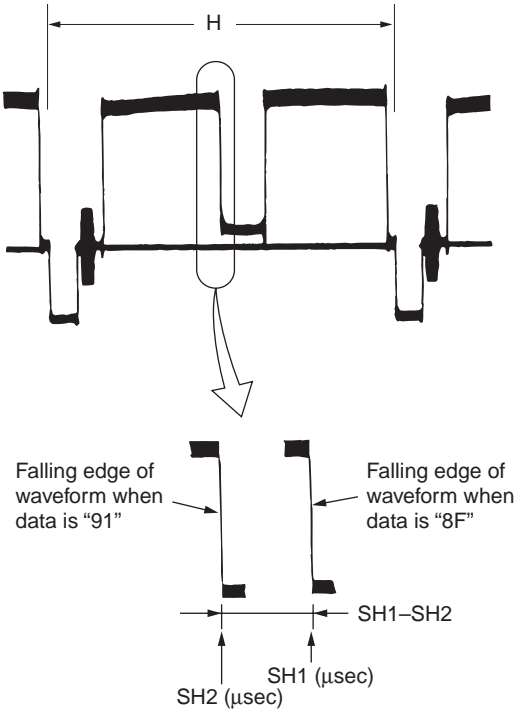


Fig. 6-1-20

16. Angular Velocity Sensor Sensitivity Adjustment

- Perform the angular velocity sensor sensitivity adjustment only when replacing the angular velocity sensor or lens block. When the microprocessor, circuit, etc. malfunctions, do not perform this adjustment but check operations only.
- Record the sensitivity label of the angular velocity sensor (repair part), including to which side of the board it was attached to, etc. If it has been attached incorrectly, the image will move up and down or to the left and right during steady shot operation. Be sure to take note of this.

Precautions on the Parts Replacement

There are two types of repair parts.

Type A ENC03MA

Type B ENC03MB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations. After replacing, readjust according to the adjusting method after replacement.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Adjustment Page	F
Adjustment Address	86, 87

Note 1: Check that the data of page: 0, address: 10 is "00".

Note 2: The sensor sensitivity (SE4001, SE4002 of SE-132 board) is labeled only on the repair parts.

Switch setting

- POWER CAMERA
- ZOOM TELE end
- DIGITAL ZOOM (Menu setting) OFF
- STEADY SHOT (Menu setting) ON

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Read the sensor sensitivity of SE4001, and it is named S ₄₀₀₁ .
3				Read the sensor sensitivity of SE4002, and it is named S ₄₀₀₂ .
4				Calculate D ₈₆ ', D ₈₇ ' using following equations. (decimal calculation) (Note 3) $D_{86}' = D_{SV} \times (0.60 \div S_{4001}) \times 88$ $D_{87}' = D_{SH} \times (0.60 \div S_{4002}) \times 88$
5				Convert D ₈₆ ', D ₈₇ ' to a hexadecimal number, and obtain D ₈₆ , D ₈₇ . (Note 4)
6	F	86	D ₈₆	Press PAUSE button.
7	F	87	D ₈₇	Press PAUSE button.

Note 3: The value that is calculated at "15. PSD Sensor Gain Adjustment" is used for D_{SV} and D_{SH}.

Note 4: Refer to table 6-4-1. "Hexadecimal-decimal conversion table"

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	01	00	
2				Check that the steady shot function operates normally.

17. Mechanical Shutter Adjustment 

Adjust the close time and loss time every F number of the mechanical shutter and the high-speed shutter correction value to correct the luminous exposure.

Subject	Clear chart (All white) (Zoom lens at WIDE end) (Note 2)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	90 to A5
Specified Value	Data of page: 6, address: A8 is "00"

Note 1: Perform "HALL Adjustment", "Flange Back Adjustment" and "F No. & ND Light Quality Standard Data Input" before this adjustment.

Note 2: With the ZOOM at WIDE end, set the distance where the clear chart is shot with all-white signal.

Note 3: Check that the data of page: 0, address: 10 is "00".

Note 4: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.

Switch setting

- 1) POWER CAMERA
- 2) ZOOM WIDE end
- 3) DIGITAL ZOOM (Menu setting) OFF
- 4) STEADY SHOT (Menu setting) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	30	01	
3	6	9C	01	
4	6	01	AD	Press PAUSE button. (Note 5)
5	6	02		Check the data changes to "01".
6	6	A8		Check the data is "00".

Note 5: The adjustment data will be automatically input to page: F, address: 90 to A5.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	30	00	
3	6	9C	00	
4	0	01	00	

18. Strobe Light Level Adjustment 

Adjust the strobe light level.

Subject	Flash adjustment box (Note 3) (50 cm from the front of the lens)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	8A to 8F
Specified Value	Data of page: F, address: B8 is "00"

Note 1: Perform "Hall Adjustment", "Flange Back Adjustment" and "F No. & ND Light Quality Standard Data Input" before this adjustment.

Note 2: Restrict external light to enter the Flash adjustment box as less as possible.

Note 3: Refer to "4. Preparing the Flash adjustment box".

Note 4: Check that the data of page: 0, address: 10 is "00".

Note 5: Check that the data of page: 6, address: 02 is "00".
If not, turn the power of unit OFF/ON.

Switch setting

- 1) POWER CAMERA
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF
- 4) Flash OPEN
(Press the FLASH button to activate the Flash mode, and then press the PHOTO button.)

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	7	05	04	(Note 6)
3	6	30	02	
4	6	01	67	Press PAUSE button. (Note 7)
5				Check the flashing of strobe light
6	6	02		Check the data changes to "01".
7	6	B8		Check the data is "00".

Note 6: Press the STOP button on the adjusting remote commander, and set the data.

Note 7: The adjustment data will be automatically input to page: F, address: 8A to 8F.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	30	00	
3	7	05	00	
4	0	01	00	

19. Strobe White Balance Adjustment *RadarW*

Adjust the white balance when the strobe light flashed.

Subject	Flash adjustment box (Note 3) (50 cm from the front of the lens)
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	36, 37
Specified Value	Fig. 6-1-21

Note 1: Perform “Hall Adjustment”, “Flange Back Adjustment”, “F No. & ND Light Quality Standard Data Input”, “AWB Adjustment” and “Strobe Light Level Adjustment” before this adjustment.

Note 2: Restrict external light to enter the Flash adjustment box as less as possible.

Note 3: Refer to “4. Preparing the Flash adjustment box”.

Note 4: Check that the data of page: 0, address: 10 is “00”.

Switch setting

- 1) POWER CAMERA
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF
- 4) Flash OPEN
(Press the FLASH button to activate the Flash mode, and then press the PHOTO button.)

Adjusting method:

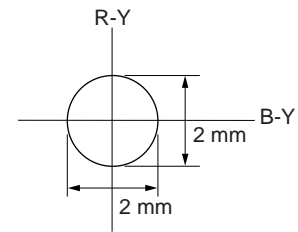
Order	Page	Address	Data	Procedure
1	0	01	01	
2	7	05	04	(Note 5)
3	E	00	00	Press PAUSE button.
4	E	01	06	Press PAUSE button.
5	6	B6	41	
6	6	B2	01	
7				Check that the LED of the FLASH button is lit.
8	6	B2	00	
9	6	30	02	
10	6	01	B9	Press PAUSE button. (Note 6)
11				Check the flashing of strobe light
12	6	02		Check the data changes to “01”.
13	6	02	00	
14	6	01	E7	Press PAUSE button.
15				Check the flashing of strobe light
16	6	02		Check the data changes to “01”.
17				Wait for 3 seconds.
18				Check that the center of the white luminance point within the circle shown Fig. 6-1-21.

Note 5: Press the STOP button on the adjusting remote commander, and set the data.

Note 6: The adjustment data will be automatically input to page: F, address: 36, 37.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	30	00	
3	6	B6	00	
4	7	05	00	
5	E	00	00	Press PAUSE button.
6	E	01	00	Press PAUSE button.
7	0	01	00	

**Fig. 6-1-21**

20. Hologram AF Output Adjustment 

Adjust so that the laser output of the hologram AF becomes proper value.

Subject	Flash adjustment box (Note 3) (50 cm from the front of the lens)
Measurement Point	Adjusting remote commander
Measuring Instrument	
Adjustment Page	F
Adjustment Address	7D to 83
Specified Value 1	10 to FF
Specified Value 2	34 to 4C
Specified Value 3	00 to F0
Specified Value 4	0A to FF

Note 1: Perform “Hall Adjustment”, “Flange Back Adjustment”, “F No. & ND Light Quality Standard Data Input” and “AWB Standard Data Input” before this adjustment.

Note 2: Restrict external light to enter the Flash adjustment box as less as possible.

Note 3: Refer to “4. Preparing the Flash adjustment box”.

Note 4: Make adjustment with the lens hood removed.

Note 5: Check that the data of page: 0, address: 10 is “00”.

Note 6: Check that the data of page: 6, address: 02 is “00”.

If not, turn the power of unit OFF/ON.

Switch setting

- 1) POWER CAMERA
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	6	30	02	
3	6	01	AF	Press PAUSE button. (Note 7)
4	6	02		Check the data changes to “01”.
5	F	7D		Check that the data satisfied the specified value 1.
6	F	82		Check that the data satisfied the specified value 2.
7	F	7E		Check that the data satisfied the specified value 3.
8	F	7F		Check that the data satisfied the specified value 4.

Note 7: The adjustment data will be automatically input to page:
F, address: 7D to 83.

At this time, check that the laser holograms are all displayed on the monitor TV screen.

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	6	01	00	Press PAUSE button.
2	6	30	00	
3	0	01	00	

21. Hologram AF Angle Check

Subject	Dark homogeneous subject (Note 2) (1 m from the front of the lens)
Measurement Point	Monitor TV
Measuring Instrument	
Specified Value	A total of two or more lines in laser hologram length must be seen in the specified frame. The laser hologram lines must be seen in four directions outside the specified frame.

Note 1: Perform “AWB Standard Data Input” before this adjustment.

Note 2: To observe the laser hologram, use a black box or darken the ambience.

Switch setting

- 1) POWER MEMORY
- 2) DIGITAL ZOOM (Menu setting) OFF
- 3) STEADY SHOT (Menu setting) OFF
- 4) FOCUS MAN

Checking method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	0	10	01	
3	E	47	0A	Press PAUSE button.
4	0	10	00	
5	6	23	04	
6	6	5B	B6	
7	6	5C	A5	
8	6	90	A9	
9	6	91	02	
10	6	92	67	
11	6	93	46	
12	6	01	79	Press PAUSE button.
13	6	01	78	Press PAUSE button.
14				Check on the monitor TV screen that the laser hologram satisfies the specified value (Fig. 6-1-22). (Note 3)

Note 3: When the specified value is not satisfied, angle of the laser hologram can be adjusted by turning the screw as shown in the Fig. 6-1-23. (in horizontal direction only)

Processing after Completing Adjustment:

Order	Page	Address	Data	Procedure
1	0	10	01	
2	E	47	00	Press PAUSE button.
3	0	10	00	
4	6	01	00	Press PAUSE button.
5	6	23	00	
6	6	5B	00	
7	6	5C	00	
8	6	90	00	
9	6	91	00	
10	6	92	00	
11	6	93	00	
12	0	01	00	

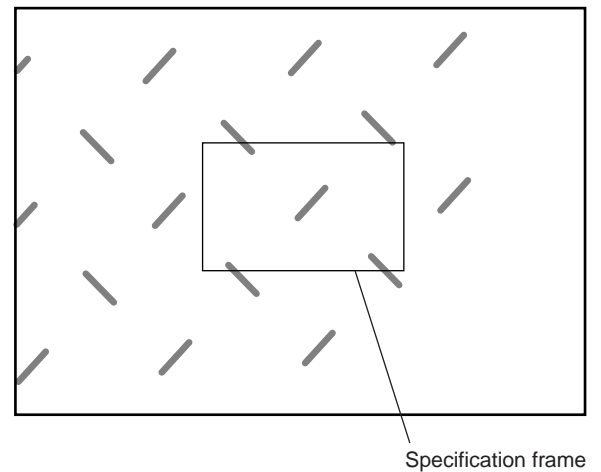


Fig. 6-1-22

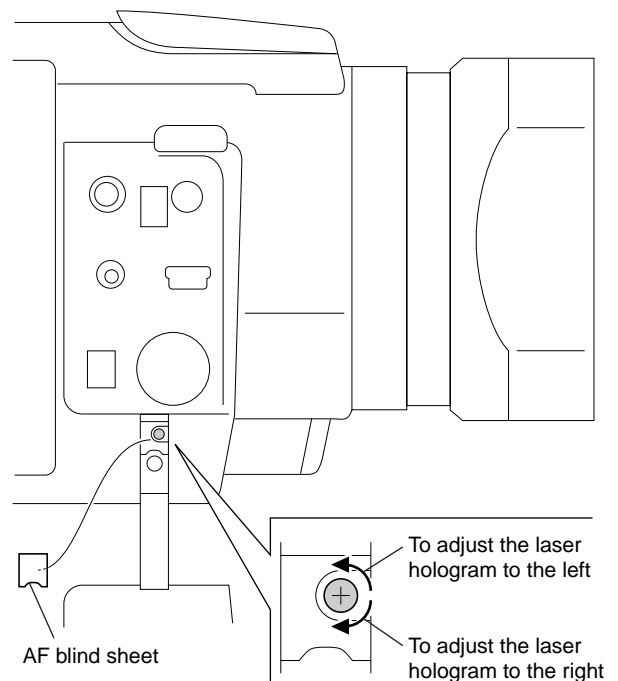


Fig. 6-1-23



1-4. COLOR ELECTRONIC VIEWFINDER
SYSTEM ADJUSTMENTS

Before perform the viewfinder system adjustments, check the data of page: 0, address: 10 is “00”.
If not, select page: 0, address: 10, and set the data “00”.

- Note 1:** Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.
- Note 2:** Set the VF B. L. (Menu setting) to the BRT NORMAL.
- Note 3:** Perform the following data setting before the viewfinder system adjustments.
- 1) Select page: 3, address: C4, and set data: 67.
 - 2) Select page: 3, address: C5, and set data: 01.
- Reset the data after completing adjustment.
- 1) Select page: 3, address: C4, and set data: 00.
 - 2) Select page: 3, address: C5, and set data: 00.

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN1008 of the VC-288 board.
Connect the Measuring Instruments via the CPC-8 jig (J-6082-388-A).

The following table shown the Pin No. and signal name of CN1008.

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	2	D_2.8V
3	EVF_LED_DA	4	EVF_VG
5	EVF_VCO	6	GND
7	MD2	8	XCS_MC_FLASH
9	XINIT	10	XCS_ST_IMAGE_IC
11	DRUM_ON	12	FRRV
13	REC_CRRT1	14	REC_CRRT0
15	REG_GND	16	HI_XRESET
17	SWP	18	RF_IN
19	GND	20	RF_MON

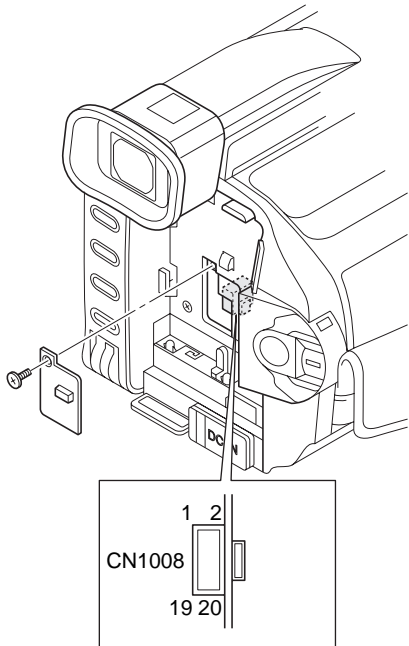


Fig. 6-1-24

1. VCO Adjustment (DB-014 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ⑤ of CN1008 (EVF_VCO) on VC-288 board
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	51, 52
Specified Value	f = 15734 ± 30 Hz (NTSC) f = 15625 ± 30 Hz (PAL)

- Note 1:** Check that the data of page: 0, address: 10 is “00”.
- Note 2:** NTSC model: DCR-TRV940/TRV950
PAL model: DCR-TRV940E/TRV950E

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	51		Change the data and set the frequency (f) to the specified value.
3	C	51		Press PAUSE button.
4	C	51		Read the data and this data is named D ₅₁ .
5				Convert D ₅₁ to decimal notation, and obtain D ₅₁ '. (Note 3)
6				Calculate D ₅₂ ' using following equations. (decimal calculation) D ₅₂ ' = D ₅₁ ' + 24 (NTSC model) D ₅₂ ' = D ₅₁ ' - 24 (PAL model)
7				Convert D ₅₂ ' to a hexadecimal number, and obtain D ₅₂ . (Note 3, 4)
8	C	52	D ₅₂	Press PAUSE button.
9	0	01	00	

- Note 3:** Refer to table 6-4-1. “Hexadecimal-decimal conversion table”
- Note 4:** If D₅₂' > 255, then D₅₂ = FF (NTSC model)
If D₅₂' < 0, then D₅₂ = 00 (PAL model)

2. RGB AMP Adjustment (DB-014 board)

Set the D Range of the RGB decoder for driving the LCD to the specified value.

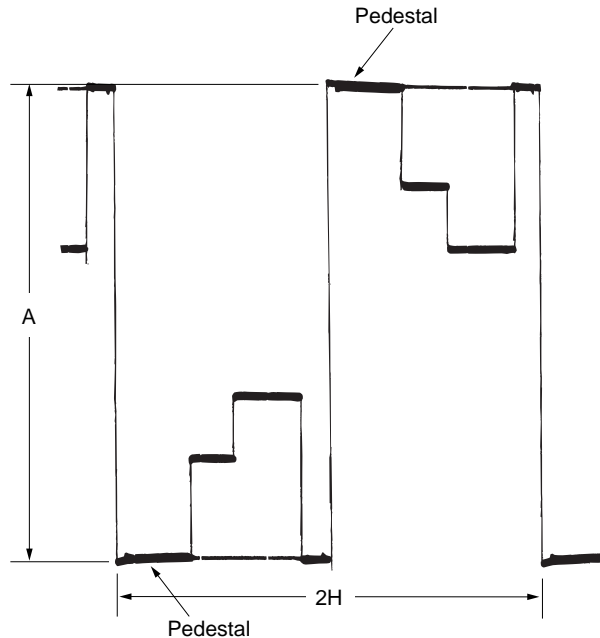
If deviated, the EVF screen image will be blackish or saturated (whitish).

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ④ of CN1008 (EVF_VG) on VC-288 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	54
Specified Value	$A = 7.00 \pm 0.05 \text{ Vp-p}$

Note: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	54		Change the data and set the voltage (A) to the specified value.
3	C	54		Press PAUSE button.
4	0	01	00	



A: Between the reversed waveform pedestal and non-reversed waveform pedestal

Fig. 6-1-25

3. Contrast Adjustment (DB-014 board)

Set the video signal level for driving the LCD to the specified value.

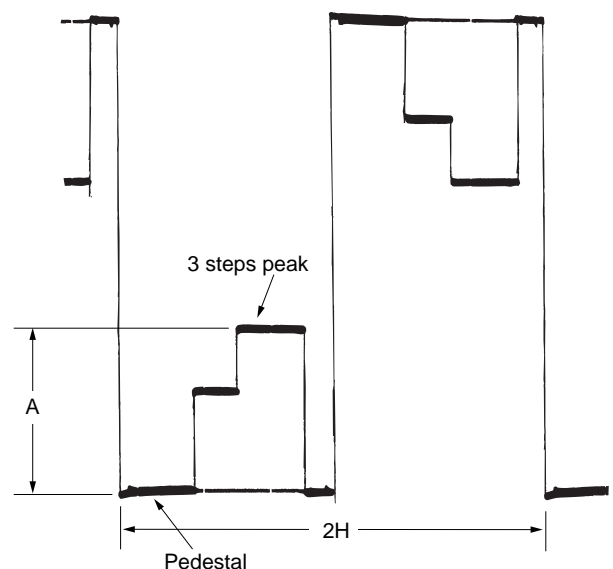
If deviated, the EVF screen image will be blackish or saturated (whitish).

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ④ of CN1008 (EVF_VG) on VC-288 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	58
Specified Value	$A = 2.40 \pm 0.05 \text{ Vp-p}$

Note: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	58		Change the data and set the voltage (A) to the specified value. (The data should be "00" to "7F")
3	C	58		Press PAUSE button.
4	0	01	00	



A: Between the pedestal and 3 steps peak

Fig. 6-1-26

4. Back Light Adjustment (DB-014 board)

Set the back light luminance.

If deviated, the image may become dark or bright.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ③ of CN1008 (EVF_LED_DA) on VC-288 board
Measuring Instrument	Digital voltmeter
Adjustment Page	C
Adjustment Address	4F, 50
Specified Value	BRIGHT mode: A = 2.10 ± 0.05 Vdc NORMAL mode: B = 1.12 ± 0.05 Vdc

Note: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	0C	20	Press PAUSE button.
3	3	22	11	Press PAUSE button.
4	C	50		Change the data and set the DC voltage (A) to the specified value of BRIGHT mode.
5	C	50		Press PAUSE button.
6	C	4F		Change the data and set the DC voltage (B) to the specified value of NORMAL mode.
7	C	4F		Press PAUSE button.
8	3	0C	00	Press PAUSE button.
9	3	22	00	Press PAUSE button.
10	0	01	00	

5. White Balance Adjustment (DB-014 board)

Correct the white balance.

If deviated, the EVF screen color cannot be reproduced.

Mode	CAMERA
Subject	Not required
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	56, 57
Specified Value	EVF screen must not be colored

Note 1: Check that the data of page: 0, address: 10 is "00".

Note 2: Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC4201

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	56	80	Press PAUSE button.
3	C	57	80	Press PAUSE button.
4				Check that the EVF screen is not colored. If not colored, proceed to step 6.
5	C	56 57		Change the data so that the EVF screen is not colored. (Note 3)
6	0	01	00	

Note 3: To write in the non-volatile memory (EEPROM), press the PAUSE button each time to set the data.



1-5. LCD SYSTEM ADJUSTMENTS

Before perform the LCD system adjustments, check that the data of page: 0, address: 10 is "00".

If not, select page: 0, address: 10, and set the data "00".

Note 1: The back light (fluorescent tube) is driven with high voltage AC power. Therefore, do not touch the back light directly, otherwise you will feel an electric shock.

Note 2: Taken an extreme care not to destroy the liquid crystal display module by static electricity when replacing it.

Note 3: Set the LCD B. L. (Menu setting) to the BRT NORMAL. Set the LCD COLOR (Menu setting) to the center.

[Adjusting connector]

Most of the measuring points for adjusting the LCD system are concentrated in CN1024 of the VC-288 board.

Connect the Measuring Instruments via the CPC-jig for LCD (J-6082-529-A).

The following table shown the Pin No. and signal name of CN1024.

Pin No.	Signal Name
1	PANEL_VG
2	PANEL_COM
3	GND
4	XHD_OUT
5	N.C.
6	N.C.

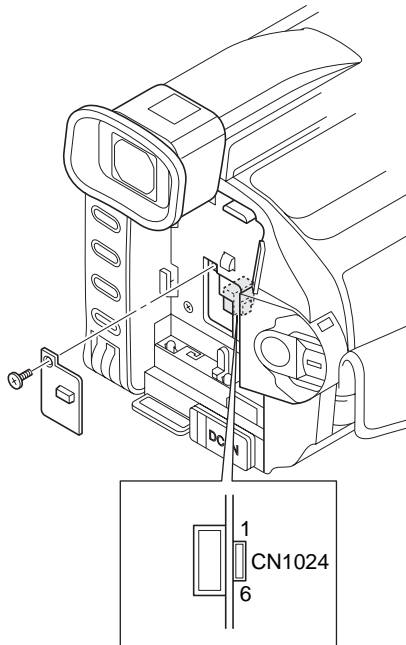


Fig. 6-1-27

1. VCO Adjustment (PD-168 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ④ of CN1024 (XHD_OUT) on VC-288 board
Measuring Instrument	Frequency counter
Adjustment Page	C
Adjustment Address	61, 62
Specified Value	f = 15734 ± 30 Hz (NTSC) f = 15625 ± 30 Hz (PAL)

Note 1: Check that the data of page: 0, address: 10 is "00".

Note 2: NTSC model: DCR-TRV940/TRV950
PAL model: DCR-TRV940E/TRV950E

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	61		Change the data and set the frequency (f) to the specified value.
3	C	61		Press PAUSE button.
4	C	61		Read the data and this data is named D ₆₁ .
5	C	62	D ₆₁	Press PAUSE button.
6	0	01	00	

2. RGB AMP Adjustment (PD-168 board)

Set the D Range of the RGB decoder for driving the LCD to the specified value.
If deviated, the LCD screen image will be blackish or saturated (whitish).

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ① of CN1024 (PANEL_VG) on VC-288 board External trigger: Pin ② of CN1024 (PANEL_COM) on VC-288 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	64
Specified Value	A = 3.50 ± 0.05 Vp-p

Note: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	64		Change the data and set the voltage (A) to the specified value. (The data should be “00” to “3F”)
3	C	64		Press PAUSE button.
4	0	01	00	

3. Contrast Adjustment (PD-168 board)

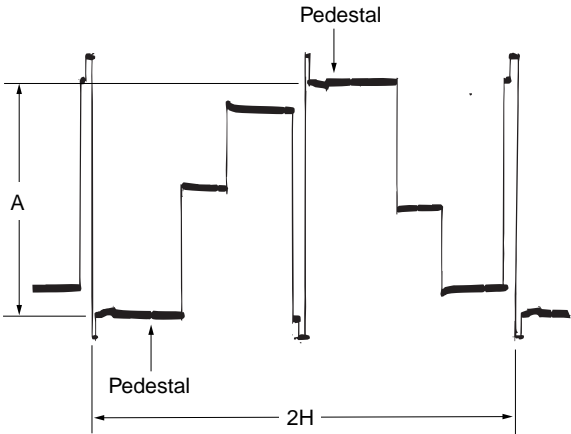
Set the video signal level for driving the LCD to the specified value.
If deviated, the LCD screen image will be blackish or saturated (whitish).

Mode	CAMERA
Subject	Not required
Measurement Point	Pin ① of CN1024 (PANEL_VG) on VC-288 board External trigger: Pin ② of CN1024 (PANEL_COM) on VC-288 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	69
Specified Value	A = 3.45 ± 0.05 Vp-p

Note: Check that the data of page: 0, address: 10 is “00”.

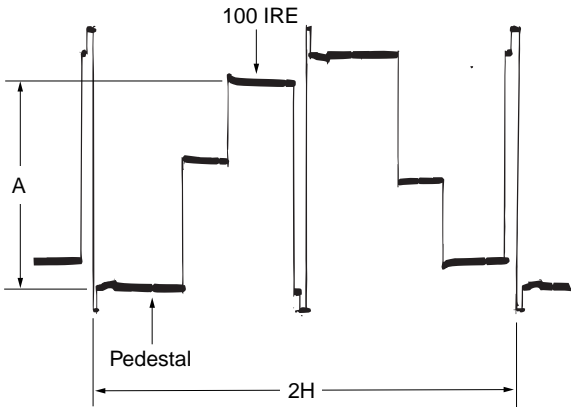
Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	69		Change the data and set the voltage (A) to the specified value. (The data should be “00” to “7F”)
3	C	69		Press PAUSE button.
4	0	01	00	



A: Between the reversed waveform pedestal and non-reversed waveform pedestal

Fig. 6-1-28



A: Between the pedestal (0 IRE) and 100 IRE

Fig. 6-1-29

4. V-COM Level Adjustment (PD-168 board)

Set the common electrode drive signal level of LCD to the specified value.

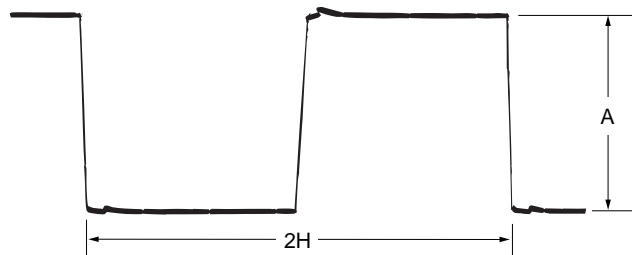
Mode	CAMERA
Subject	Not required
Measurement Point	Pin ② of CN1024 (PANEL_COM) on VC-288 board
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	66
Specified Value	$A = 5.40 \pm 0.05 \text{ Vp-p}$

Note 1: Perform “RGB AMP Adjustment” and “Contrast Adjustment” before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	66		Change the data and set the voltage (A) to the specified value.
3	C	66		Press PAUSE button.
4	0	01	00	



A: PANEL COM signal level

Fig. 6-1-30

5. V-COM Adjustment (PD-168 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will be move, producing flicker and conspicuous vertical lines.

Mode	CAMERA
Subject	Not required
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	63
Specified Value	The brightness difference between the section-A and section-B is minimum

Note 1: Perform “RGB AMP Adjustment”, “Contrast Adjustment” and “V-COM Level Adjustment” before this adjustment.

Note 2: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	63		Change the data so that brightness of the section A and section B is equal.
3	C	63		Subtract 8 from the data.
4	C	63		Press PAUSE button.
5	0	01	00	

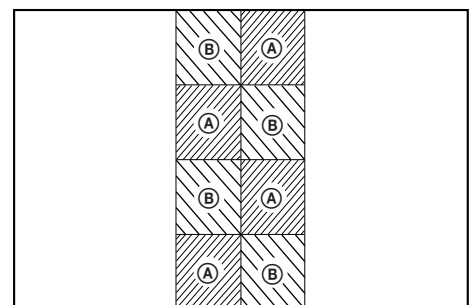


Fig. 6-1-31

6. White Balance Adjustment (PD-168 board)

Correct the white balance.

If deviated, the LCD screen color cannot be reproduced.

Mode	CAMERA
Subject	Not required
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	C
Adjustment Address	67, 68
Specified Value	LCD screen must not be colored

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC5701

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	67	7F	Press PAUSE button.
3	C	68	87	Press PAUSE button.
4				Check that the LCD screen is not colored. If not colored, proceed to step 6.
5	C	67 68		Change the data so that the LCD screen is not colored. (Note 3)
6	0	01	00	

Note 3: To write in the non-volatile memory (EEPROM), press the PAUSE button each time to set the data.



6-2. MECHANISM SECTION ADJUSTMENTS

On the mechanism section adjustment

For details of mechanism section adjustments, checks, and replacement of mechanism parts, refer to the separate volume “DV MECHANICAL ADJUSTMENT MANUAL VI [J Mechanism]”.

2-1. HOW TO ENTER RECORD MODE WITHOUT CASSETTE

- 1) Connect the adjustment remote commander to the LANC jack.
- 2) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 3) Close the cassette compartment without the cassette.
- 4) Select page: 3, address: 01, set data: 0C, and press the PAUSE button of the adjustment remote commander.
(The mechanism enters the record mode automatically.)
Note: The function buttons become inoperable.
- 5) To quit the record mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the record mode, be sure to quit following this procedure.)

2-2. HOW TO ENTER PLAYBACK MODE WITHOUT CASSETTE

- 1) Connect the adjustment remote commander to the LANC jack.
- 2) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 3) Close the cassette compartment without the cassette.
- 4) Select page: 3, address: 01, set data: 0B, and press the PAUSE button of the adjustment remote commander.
(The mechanism enters the playback mode automatically.)
Note: The function buttons become inoperable.
- 5) To quit the playback mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the playback mode, be sure to quit following this procedure.)

2-3. TAPE PATH ADJUSTMENT

1. Preparation for Adjustment

- 1) Clean the tape running side (tape guide, drum, capstan shaft, pinch roller, etc.).
- 2) Connect the adjustment remote commander to the LANC jack.
- 3) Turn the HOLD switch of the adjustment remote commander to the ON position.
- 4) Connect an oscilloscope to VC-288 board CN1008 via the CPC-8 jig (J-6082-388-A).

Channel 1: VC-288 board, CN1008 Pin ⑳ (Note)

External trigger: VC-288 board, CN1008 Pin ⑰

Note: Connect a 75 Ω resistor between pins ⑳ of CN1008 and ⑲ (GND).

75 Ω resistor (Parts code: 1-247-804-11)

- 5) Playback the alignment tape for tracking. (XH2-1)
- 6) Select page: 3, address: 33, and set data: 08.
- 7) Select page: 3, address: 26, and set data: 31.
- 8) Check that the oscilloscope RF waveform is normal at the entrance and exit.

If not normal, adjust according to the separate volume “DV MECHANICAL ADJUSTMENT MANUAL VI [J Mechanism]”.

CN1008 of VC-288 board

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	2	D_2.8V
3	EVF_LED_DA	4	EVF_VG
5	EVF_VCO	6	GND
7	MD2	8	XCS_MC_FLASH
9	XINIT	10	XCS_ST_IMAGE_IC
11	DRUM_ON	12	FRRV
13	REC_CRRT1	14	REC_CRRT0
15	REG_GND	16	HI_XRESET
17	SWP	18	RF_IN
19	GND	20	RF_MON

2. Procedure after operations

- 1) Connect the adjustment remote commander to the LANC jack and set the HOLD switch to the ON position.
- 2) Select page: 3, address: 26, and set data: 00.
- 3) Select page: 3, address: 33, and set data: 00.

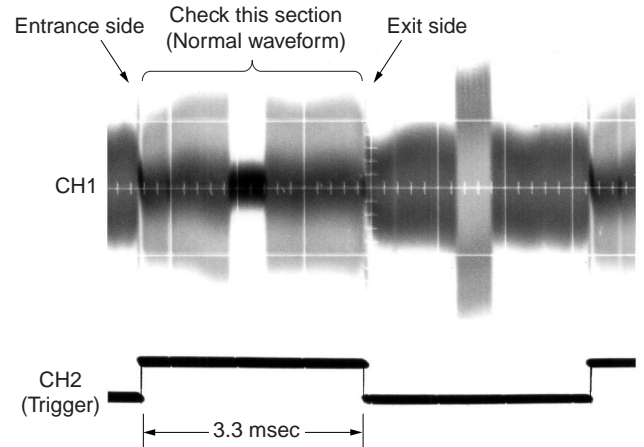


Fig. 6-2-1



6-3. VIDEO SECTION ADJUSTMENTS

NTSC model : DCR-TRV940/TRV950

PAL model : DCR-TRV940E/TRV950E

3-1. PREPARATIONS BEFORE ADJUSTMENTS (VIDEO SECTION)

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment Required

- 1) TV monitor
- 2) Oscilloscope (dual-phenomenon, band above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
- 3) Frequency counter
- 4) Pattern generator with video output terminal.
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Regulated power supply
- 11) Alignment tapes
 - Tracking standard (XH2-1)
Parts code: 8-967-997-01
 - SW/OL standard (XH2-3)
Parts code: 8-967-997-11
 - Audio operation check for NTSC (XH5-3)
Parts code: 8-967-997-51
 - System operation check for NTSC (XH5-5)
Parts code: 8-967-997-61
 - Audio operation check for PAL (XH5-3P)
Parts code: 8-967-997-55
 - System operation check for PAL (XH5-5P)
Parts code: 8-967-997-66
- 12) Adjustment remote commander (J-6082-053-B)
- 13) CPC-8 jig (J-6082-388-A)

3-1-2. Precautions on Adjusting

- 1) This set is adjusted in two modes, VTR mode and CAMERA mode.
To activate the VTR mode, set the POWER switch to the "VIDEO" position, or select the "Forced VTR Power ON Mode" with the adjusting remote commander. (Note 1)
To activate the CAMERA mode, set the POWER switch to the "CAMERA" position, or select the "Forced CAMERA Power ON Mode" with the adjusting remote commander. (Note 2)
After the adjustment finished, be sure to cancel the "Forced VTR Power ON Mode" or "Forced CAMERA Power ON Mode". (Note 4)
- 2) The VTR can be operated even if the cabinet (R) (operation switch (CK-116 board), LCD block) is removed. However, the lithium 3V power is removed if the cabinet (R) is removed (CN5203 on the CK-116 board is disconnected), causing the data such as date and time, user set menu, etc. to be cleared. These data must be re-set after the adjustment finished. The diagnostic data and log data (drum running hours, user first power ON date, last dew date) are saved even if the lithium 3V power is removed. When the cabinet (R) is removed, disconnect the following connector:
 1. CK-116 board CN5203 (60P, 0.5mm)
- 3) The VTR can be operated even if the front panel block (MA-410 board, focus ring, micro unit) is removed. When the front panel block is removed, disconnect the following connectors:
 1. MA-410 board CN5906 (33P, 0.5mm)
 2. MA-410 board CN5904 (8P, 0.5mm)
- 4) The BT-003 board (DCR-TRV950/TRV950E only) and the flash unit need not be connected. If removed, disconnect the following connectors:
 1. BT-003 board CN101 (15P, 0.3mm) (DCR-TRV950/TRV950E only)
 2. BT-003 board CN102 (Bluetooth antenna terminal) (DCR-TRV950/TRV950E only)
 3. DB-014 board CN1010 (23P, 0.3mm)
- 5) The view finder block (LB-080 board) and the intelligent accessory shoe need not be connected. If removed, disconnect the following connectors:
 1. DB-014 board CN7211 (21P, 0.3mm)
 2. DB-014 board CN7205 (27P, 0.3mm)
- 6) The lens block (CD-389 board) need not be connected. If removed, disconnect the following connectors:
 1. VC-288 board CN1201 (60P, 0.5mm)
 2. DB-014 board CN1501 (10P, 0.5mm)
 3. DB-014 board CN1004 (39P, 0.3mm)
- 7) With the "forced power ON mode" activated, the VTR can be operated even if the operation switch block (PS-1870) is removed. If removed, disconnect the following connector:
 1. DB-014 board CN7201 (6P, 0.5mm)

Note 1: Setting the "Forced VTR Power ON" mode (VTR mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the VTR power to be turned on with the power switch (PS-1870 block) removed.
After completing adjustments, be sure to exit the "Forced VTR Power ON mode".

Note 2: Setting the "Forced Camera Power ON" mode (Camera mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the camera power to be turned on with the power switch (PS-1870 block) removed.
After completing adjustments, be sure to exit the "Forced Camera Power ON mode".

Note 3: Setting the "Forced Memory Power ON" mode (Memory mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 05, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the memory power to be turned on with the power switch (PS-1870 block) removed.
After completing adjustments, be sure to exit the "Forced Memory Power ON mode".

Note 4: Exiting the "Forced Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-288 board CN1008. Connect the measuring instruments via the CPC-8 jig (J-6082-388-A). The following table lists the pin numbers and signal names of CN1008.

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	2	D_2.8V
3	EVF_LED_DA	4	EVF_VG
5	EVF_VCO	6	GND
7	MD2	8	XCS_MC_FLASH
9	XINIT	10	XCS_ST_IMAGE_IC
11	DRUM_ON	12	FRRV
13	REC_CRRT1	14	REC_CRRT0
15	REG_GND	16	HL_XRESET
17	SWP	18	RF_IN
19	GND	20	RF_MON

Table 6-3-1

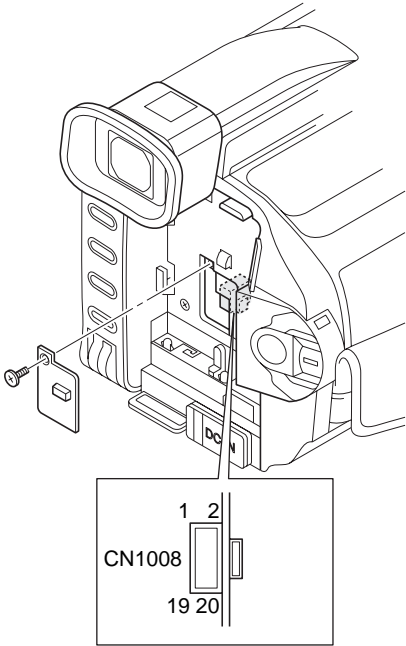


Fig. 6-3-1

3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 6-3-2, and perform the adjustments.

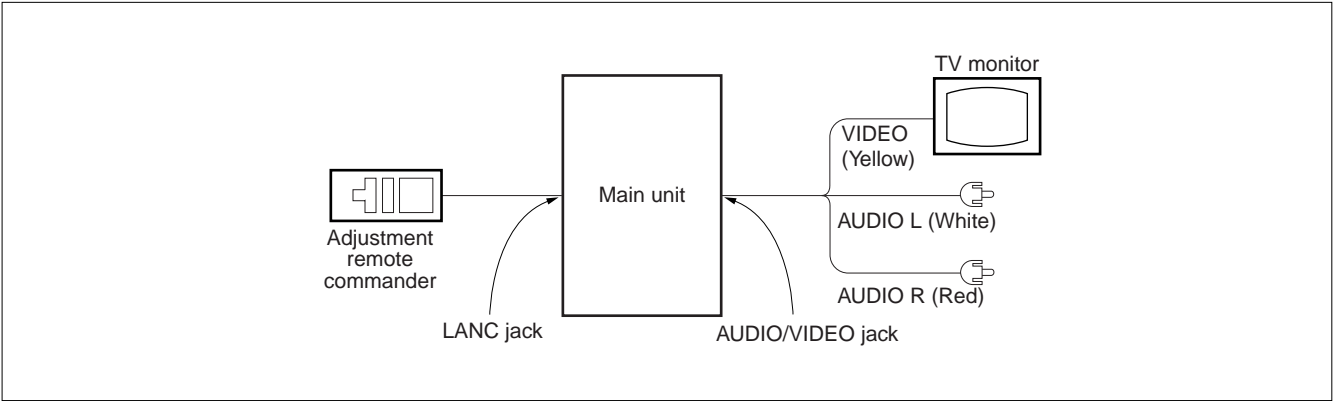


Fig. 6-3-2

3-1-5. Alignment Tapes

Use the alignment tapes shown in the following table.

Use tapes specified in the signal column of each adjustment.

Name	Use
Tracking standard (XH2-1)	Tape path adjustment
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3 (NTSC), XH5-3P (PAL))	Audio system adjustment
System operation check (XH5-5 (NTSC), XH5-5P (PAL))	Operation check

Fig. 6-3-3 shows the 75% color bar signals recorded on the alignment tape for Audio Operation Check.

Note: Measure with video terminal (Terminated at 75 Ω)

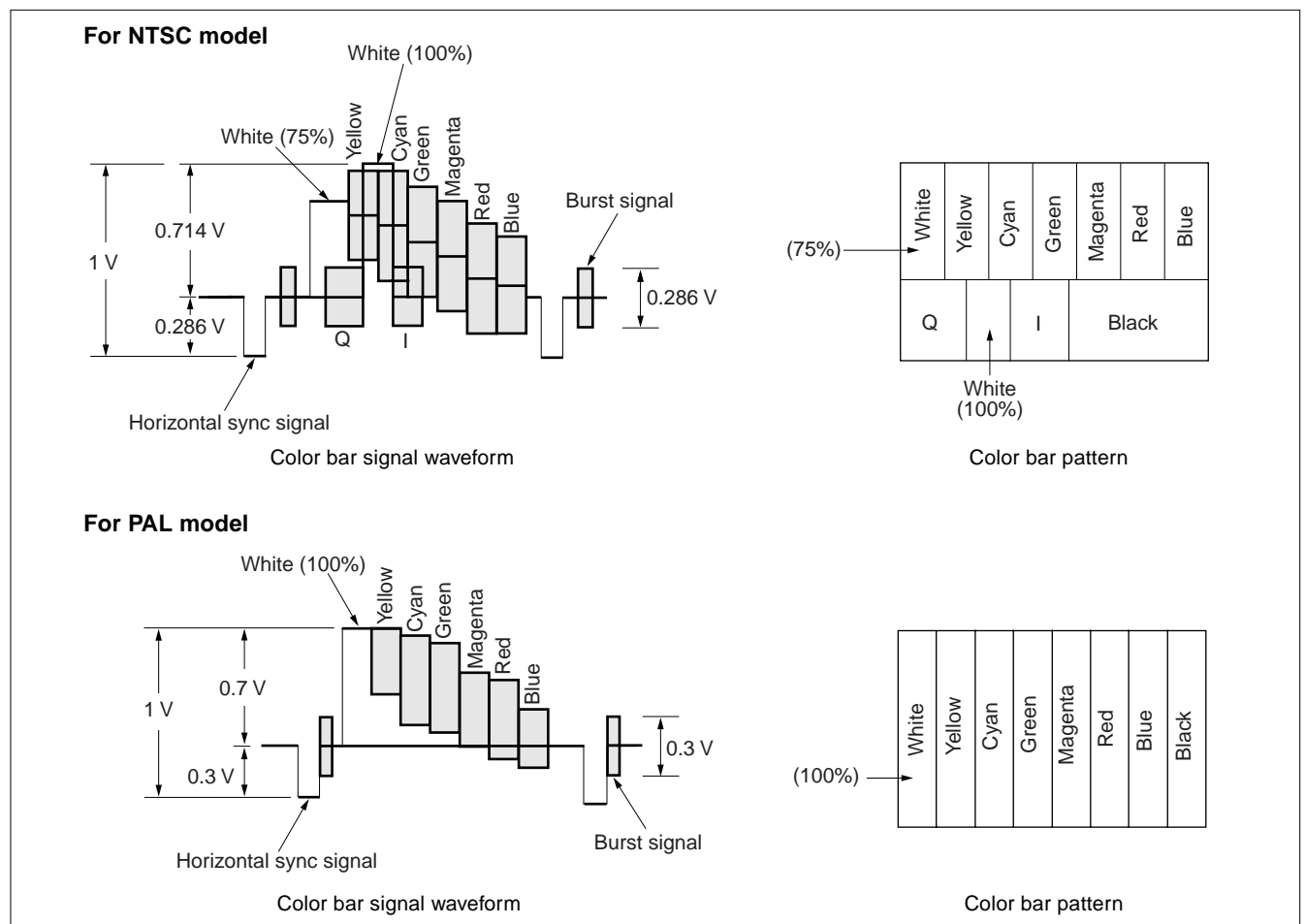


Fig. 6-3-3. Color bar signal of alignment tapes

3-1-6. Input/Output Level and Impedance

S video input/output

4-pin mini DIN

Luminance signal: 1 Vp-p,
75 Ω (ohms), unbalanced, sync
negative

Chrominance signal:

DCR-TRV940/TRV950: 0.286 Vp-p

DCR-TRV940E/TRV950E: 0.3 Vp-p
75 Ω (ohms), unbalanced

A/V (Audio/Video) input/output

AV MINI JACK, input/output
auto switch

Video signal: 1 Vp-p, 75 Ω (ohms),
unbalanced, sync negative

Audio signal: 327 mV, (at output
impedance more than 47 k Ω
(kilohms))

Input impedance with more than
47 k Ω (kilohms)

Output impedance with less than
2.2 k Ω (kilohms)



3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Initialization of 8, A, B, C, D, E, F, 1B, 1E, 1F
Page Data

If the 8, A, B, C, D, E, F, 1B, 1E, 1F page data is erased due to some reason, perform “1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1E, 1F PAGE DATA” of “CAMERA SYSTEM ADJUSTMENTS”.

Check that the data of page: 0, address: 10 is “00”.

If not, select page: 0, address: 10, and set the data “00”.

2. Touch Panel Adjustment

Adjust the calibration of touch panel.

Mode	VTR stop
Signal	Arbitrary
Adjustment Page	A
Adjustment Address	90 to 93

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: Adjustment must be performed while observing the LCD screen from the front.

Adjusting method:

- 1) Select page: 7, address: 05, and set data: 01.
- 2) Using a ball-point pen etc., push the center of “×” indicated in the part A.
- 3) Using a ball-point pen etc., push the center of “×” indicated in the part B.
- 4) Using a ball-point pen etc., push the center of “×” indicated in the part C.
- 5) Select page: 7, address: 05, and set data: 00.

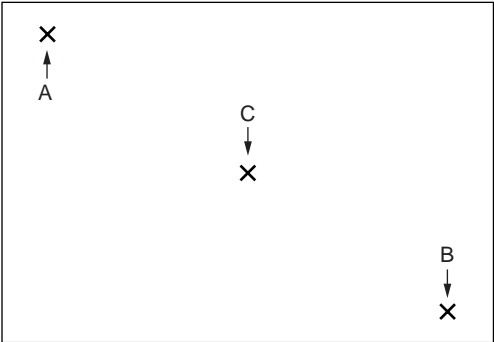


Fig. 6-3-4

3. Node Unique ID No. Input

Note 1: Check that the data of page: 0, address: 10 is "00".

Note 2: Perform "3-2. Input of Serial No." if the data on page 8 has been cleared and the node unique ID No. is not found.

3-1. Input of Company ID

Write the company ID to the EEPROM (nonvolatile memory).

Page	8
Address	8C, 8D, 8E, 8F, 90

Input method:

1) Select page: 0, address: 01, and set data: 01.

2) Select page: 8, and enter the following data.

Note 2: Each time the data is set, press the PAUSE button on the adjusting remote commander.

Address	Data
8C	08
8D	00
8E	46
8F	01
90	02

3) Select page: 0, address: 01, and set data: 00.

3-2. Input of Serial No.

Write the serial No. and model code to the EEPROM (nonvolatile memory).

In writing the serial No., a decimal number should be converted into a hexadecimal number.

Page	8
Address	91, 92, 93

1) Select page: 0, address: 01, and set data: 01.

2) Read the serial No. from the model name label, and it is assumed to be D_1 .

Example: If serial No. is "77881",

$$D_1 = 77881$$

3) From Table 6-3-2, obtain D_2 and H_1 that correspond to D_1 .

Example: If $D_1 = 77881$,

$$D_2 = D_1 - 65536 = 12345$$

$$H_1 = FE$$

D_1 (decimal)	D_2 (decimal)	H_1 (hexadecimal) (Service model code)
00001 to 65535	D_1	FE
65536 to 131071	$D_1 - 65536$	FE
131072 to 196607	$D_1 - 131072$	FE

Table 6-3-2

4) Enter H_1 to address: 91 on page: 8.

Example: If $H_1 = FE$,

select page: 8, address: 91, and set data: FE, then press the PAUSE button.

5) From Table 6-3-3, obtain the maximum decimal number less than D_2 , and it is assumed to be D_3 .

Example: If $D_2 = 12345$,

$$D_3 = 12288$$

6) From Table 6-3-3, obtain a hexadecimal number that corresponds to D_3 , and it is assumed to be H_3 .

Example: If $D_3 = 12288$,

$$H_3 = 3000$$

7) Calculate D_4 using following equations (decimal calculation). ($0 \leq D_4 \leq 225$)

$$D_4 = D_2 - D_3$$

Example: If $D_2 = 12345$ and $D_3 = 12288$,

$$D_4 = 12345 - 12288 = 57$$

8) Convert D_4 into a hexadecimal number to obtain H_4 . (See Table 6-4-1 "Hexadecimal - decimal conversion table" in 6-4. Service Mode)

Example: If $D_4 = 57$,

$$H_4 = 39$$

9) Enter higher two digits of H_3 to address: 92 on page: 8.

Example: If $H_3 = 3000$,

select page: 8, address: 92, and set data: 30, then press the PAUSE button.

10) Enter H_4 to address: 93 on page: 8.

Example: If $H_4 = 39$,

select page: 8, address: 93, and set data: 39, then press the PAUSE button.

11) Select page: 0, address: 01, and set data: 00.

DCR-TRV940/TRV940E/TRV950/TRV950E

D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃	D ₃	H ₃
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Note: D₃: Decimal
H₃: Hexadecimal

Table 6-3-3



3-3. SERVO AND RF SYSTEM ADJUSTMENTS

Before perform the servo and RF system adjustments, check that the specified values of “66MHz/54MHz Origin Oscillation Adjustment” of “1-3. CAMERA SYSTEM ADJUSTMENTS” is satisfied.

Check that the data of page: 0, address: 10 is “00”.

If not, select page: 0, address: 10, and set the data “00”.

Adjusting Procedure:

1. CAP FG duty adjustment
2. PLL f_0 & LPF f_0 Pre-adjustment
3. Switching position adjustment
4. AGC center level and APC & AEQ adjustment
5. PLL f_0 & LPF f_0 final adjustment

1. CAP FG Duty Adjustment (VC-288 board)

RadarW

Set the CAP FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur in the LP mode.

Mode	VTR stop
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	16
Specified value	The data of page: 3, address: 03 is “00”

Note 1: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting cassette.
2	0	01	01	
3	3	01	1B	Press PAUSE button.
4	3	02		Check the data changes in the following order “1B” → “2B” → “00”
5	3	03		Check the data is “00”. (Note 2)
6	0	01	00	

Note 2: If the data is “01”, adjustment has errors or the mechanism deck is defective.

2. PLL f_0 & LPF f_0 Pre-Adjustment (VC-288 board)

RadarW

Mode	VTR stop
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 02 and 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 29
Specified value	The data of page: 3, address: 02 is “00” The data of page: 3, address: 03 is “00”

Note 1: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	C	21	DC	Press PAUSE button.
3	3	01	30	Press PAUSE button.
4	3	02		Check the data changes to “00” within 5 seconds. (Note 2)
5	3	03		Check the data is “00”. (Note 2, 3)
6	0	01	00	

Note 2: If check is NG, select page: C, address: 21, set the following data, and press the PAUSE button, and repeat steps 3 to 5.

	Setting data
When the data of page: C, address: 21 is “DC”	E0
When the data of page: C, address: 21 is “E0”	D8
When the data of page: C, address: 21 is “D8”	E4
When the data of page: C, address: 21 is “E4”	D4

The adjustment is defective, if the above procedure results in NG.

Note 3: If bit value of bit2, bit3, bit4, bit5 or bit6 is “1”, adjustment has errors. For the error contents, see the following table. (For the bit values, refer to “6-4. SERVICE MODE”, “4-3. 3. Bit value discrimination”).

Bit value of page: 3, address: 03 data	Error contents
bit2 = 1 or bit 3 = 1	PLL f_0 fine adjustment is defective
bit4 = 1 or bit 5 = 1	PLL f_0 adjustment is defective
bit6 = 1	LPF f_0 adjustment is defective

3. Switching Position Adjustment (VC-288 board)

RadarW

Mode	VTR playback
Signal	SW/OL standard (XH2-3)
Measurement Point	Displayed data of page: 3, address: 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	10, 11, 12, 13
Specified value	The data of page: 3, address: 03 is "00"

Note 1: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the SW/OL standard tape and enter the VTR stop mode.
2	0	01	01	
3	C	10	EE	Press PAUSE button.
4	3	21		Check the data is "02". (Note 2)
5	3	01	0D	Press PAUSE button.
6	3	02		Check the data changes to "00".
7	3	03		Check the data is "00". (Note 3)
8	0	01	00	

Note 2: If the data is "72", the tape top being played. After playing the tape for 1 to 2 seconds, stop it, perform step 5 and higher.

If the data is "62", the tape end being played. After rewind the tape, perform step 5 and higher.

Note 3: If bit0 of the data is "1", the EVEN channel is defective. If bit1 of the data is "1", the ODD channel is defective. Contents of the defect is see written into page: C, address: 10 and 12. See following table. (For the bit values, refer to "6-4. SERVICE MODE", "4-3. 3. Bit value discrimination".)

If bit3 of the data is "1", the tape end being played, so rewind the tape and perform the adjustment again.

When the EVEN channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into EEP ROM (IC2502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2101

When the ODD channel is defective

Data of page: C, address: 12	Contents of defect
EE	Writing into EEP ROM (IC2502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2101

4. AGC Center Level and APC & AEQ Adjustment

Note: Check that the data of page: 0, address: 10 is "00".

4-1. Preparations before adjustments

Mode	CAMERA recording
Subject	Arbitrary

Adjusting method:

Order	Page	Address	Data	Procedure
1	7	30	80	
2				Record camera signal for 3 minutes, and rewind the tape.

4-2. AGC Center Level Adjustment (VC-288 board)**RadarW**

Mode	VTR playback
Subject	Recorded signal at “Preparations before adjustments”
Measurement Point	CH1: Pin ⑳ of CN1008 (RF MON) (Note 1) CH2 (Trigger): Pin ⑰ of CN1008 (SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	1E
Specified value	The data of page: 3, address: 03 is “00”

Note 1: Connect a 75 Ω resistor (1-247-804-11) between Pin ⑳ and Pin ⑲ (GND) of CPC jig.

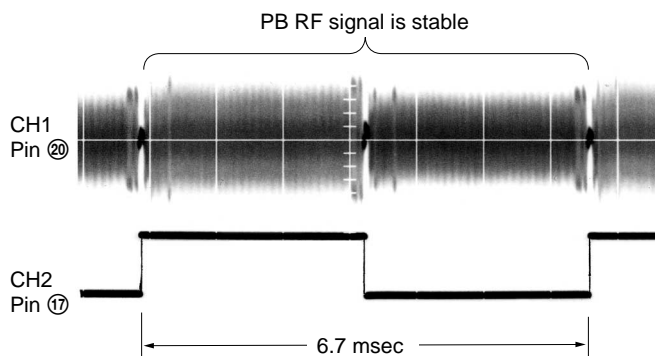
Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at “Preparations before adjustments”.
2	0	01	01	
3	3	33	08	
4				Confirm that the playback RF signal is stable. (Fig. 6-3-5)
5	3	01	23	Press PAUSE button.
6	3	02		Check the data changes to “00”
7	3	03		Check the data is “00”. (Note 2)
8	0	01	00	Perform “APC & AEQ Adjustment”.

Note 2: If the data is other than “00”, adjustment has errors. (Take an appropriate remedial measures according to the errors referring to the following table)

Data of page: 3, address: 03	Contents of defect
20	Perform re-adjustment. (Note 3)
30	The machine is defective.
40	Perform re-adjustment. (Note 3)
50	The machine is defective.

Note 3: If this data displayed twice successively, the machine is defective.

**Fig. 6-3-5****4-3. APC & AEQ Adjustment (VC-288 board)****RadarW**

Mode	VTR playback
Subject	Recorded signal at “Preparations before adjustments”
Measurement Point	CH1: Pin ⑳ of CN1008 (RF MON) (Note 1) CH2 (Trigger): Pin ⑰ of CN1008 (SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	18, 19, 1B, 1C, 21, 2C
Specified value	The data of page: 3, address: 03 is “00”

Note 1: Connect a 75 Ω resistor (1-247-804-11) between Pin ⑳ and Pin ⑲ (GND) of CPC jig.

Note 2: Perform “AGC Center Level Adjustment” before this adjustment.

Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at “Preparations before adjustments”.
2	0	01	01	
3	3	33	08	
4				Confirm that the playback RF signal is stable. (Fig. 6-3-5)
5	3	01	07	Press PAUSE button.
6	3	02		Check the data changes from “07” to “00” in about 20 seconds after pressing PAUSE button
7	3	03		Check the data is “00”. (Note 3)
8	7	30	00	
9	3	33	00	
10	0	01	00	

Note 3: If the data is other than “00”, adjustment has errors. (Take an appropriate remedial measures according to the errors referring to the following table)

Data of page: 3, address: 03	Contents of defect
20	Perform re-adjustment. (Note 4)
30	The machine is defective.
50	Perform re-adjustment. (Note 4)
60	The machine is defective.
80	The machine is defective.

Note 4: If this data displayed twice successively, the machine is defective.

5. PLL f_0 & LPF f_0 Final Adjustment (VC-288 board)

Mode	VTR stop
Signal	No signal
Measurement Point	Displayed data of page: 3, address: 02 and 03
Measuring Instrument	Adjusting remote commander
Adjustment Page	C
Adjustment Address	1F, 20, 22, 29
Specified value	The data of page: 3, address: 02 is "00" The data of page: 3, address: 03 is "00"

Note 1: Check that the data of page: 0, address: 10 is "00".

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	01	30	Press PAUSE button.
3	3	02		Check the data changes to "00" within 5 seconds. (Note 2)
4	3	03		Check the data is "00". (Note 2, 3)
5	0	01	00	

Note 2: If check is NG, the machine is defective.

Note 3: If bit value of bit2, bit3, bit4, bit5 or bit6 is "1", adjustment has errors. For the error contents, see the following table. (For the bit values, refer to "6-4. SERVICE MODE", "4-3. 3. Bit value discrimination".)

Bit value of page: 3, address: 03 data	Error contents
bit2 = 1 or bit 3 = 1	PLL f_0 fine adjustment is defective
bit4 = 1 or bit 5 = 1	PLL f_0 adjustment is defective
bit6 = 1	LPF f_0 adjustment is defective



3-4. VIDEO SYSTEM ADJUSTMENTS

Before perform the video system adjustments, check that the specified values of “66MHz/54MHz Origin Oscillation Adjustment” of “1-3. CAMERA SYSTEM ADJUSTMENTS” is satisfied.

Check that the data of page: 0, address: 10 is “00”.

If not, select page: 0, address: 10, and set the data “00”.

Adjusting Procedure:

1. Chroma BPF f_0 adjustment
2. S VIDEO OUT Y level adjustment
3. S VIDEO OUT chroma level adjustment
4. VIDEO OUT level check

1. Chroma BPF f_0 Adjustment (DB-014 board)

Set the center frequency of IC7001 chroma band-pass filter.

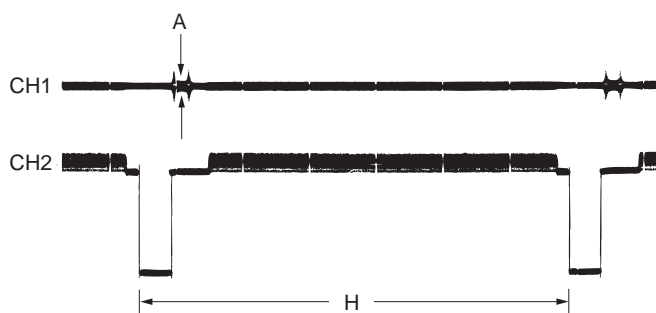
Mode	CAMERA
Subject	All black (Cover the lens with the lens cap)
Measurement Point	CH1: Chroma signal terminal of S VIDEO jack (75 Ω terminated) CH2: Y signal terminal of S VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	28
Specified value	A = 100 mVp-p or less B = 200 mVp-p or more

Note: Check that the data of page: 0, address: 10 is “00”.

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2				Check the that the burst signal (B) is output to the chroma signal terminal.
3	3	0C	04	Press PAUSE button.
4	C	28		Change the data and for minimum amplitude of the burst signal level (A). (The data should be “00” to “0F”)
5	C	28		Press PAUSE button.
6	3	0C	00	Press PAUSE button.
7				Check the burst signal (B) to the specified value.
8	0	01	00	

When the data of page: 3, address: 0C, is 04:



When the data of page: 3, address: 0C, is 00:

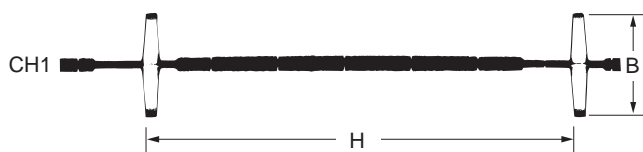


Fig. 6-3-6

2. S VIDEO OUT Y Level Adjustment (DB-014 board)

Mode	CAMERA
Subject	Arbitrary
Measurement Point	Y signal terminal of S VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	25
Specified value	A = 1000 ± 14 mVp-p

Note: Check that the data of page: 0, address: 10 is “00”.

Switch setting

1) DEMO MODE (Menu display) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	0C	02	Press PAUSE button.
3	C	25		Change the data and set the Y signal level (A) to the specified value.
4	C	25		Press PAUSE button.
5	3	0C	00	Press PAUSE button.
6	0	01	00	

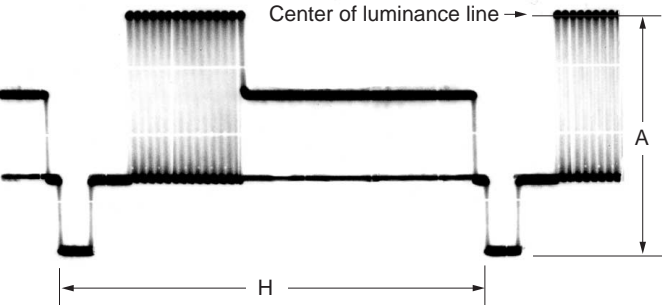


Fig. 6-3-7

3. S VIDEO OUT Chroma Level Adjustment (DB-014 board)

Mode	CAMERA
Subject	Arbitrary
Measurement Point	Chroma signal terminal of S VIDEO jack (75 Ω terminated) External trigger: Y signal terminal of S VIDEO jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	26, 27
Specified value	Cr level: A = 714 ± 14 mVp-p (NTSC) A = 700 ± 14 mVp-p (PAL) Cb level: B = 714 ± 14 mVp-p (NTSC) B = 700 ± 14 mVp-p (PAL) Burst level: C = 286 ± 6 mVp-p (NTSC) C = 300 ± 6 mVp-p (PAL)

Note 1: Check that the data of page: 0, address: 10 is “00”.

Note 2: NTSC model: DCR-TRV940/TRV950
PAL model: DCR-TRV940E/TRV950E

Switch setting

1) DEMO MODE (Menu display) OFF

Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	
2	3	0C	02	Press PAUSE button.
3	C	26		Change the data and set the Cr signal level (A) to the specified value.
4	C	26		Press PAUSE button.
5	C	27		Change the data and set the Cb signal level (B) to the specified value.
6	C	27		Press PAUSE button.
7				Check the burst signal (C) to the specified value.
8	3	0C	00	Press PAUSE button.
9	0	01	00	

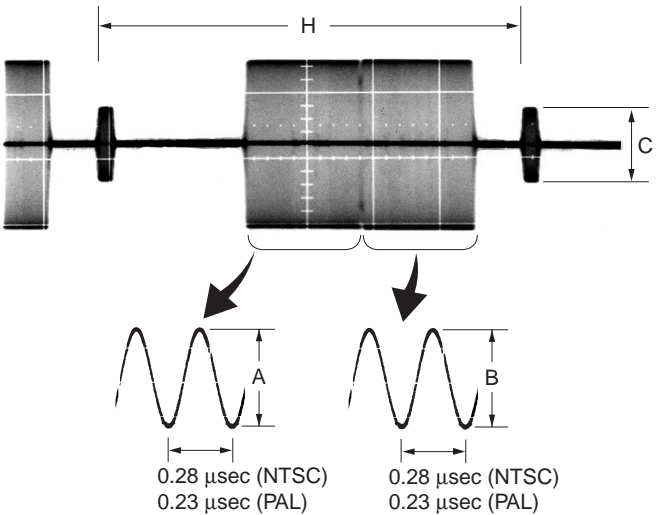


Fig. 6-3-8

4. VIDEO OUT Level Check (DB-014 board)

Mode	CAMERA
Subject	Arbitrary
Measurement Point	Video terminal of A/V jack (75 Ω terminated)
Measuring Instrument	Oscilloscope
Specified value	Sync level: A = 286 ± 18 mVp-p (NTSC) A = 300 ± 18 mVp-p (PAL) Burst level: B = 286 ± 18 mVp-p (NTSC) B = 300 ± 18 mVp-p (PAL)

Note 1: Check that the data of page: 0, address: 10 is "00".

Note 2: NTSC model: DCR-TRV940/TRV950

PAL model: DCR-TRV940E/TRV950E

Switch setting

1) DEMO MODE (Menu display) OFF

Checking method:

Order	Page	Address	Data	Procedure
1	3	0C	02	Press PAUSE button.
2				Check the sync signal level (A) to the specified value.
3				Check the burst signal level (B) to the specified value.
4	3	0C	00	Press PAUSE button.

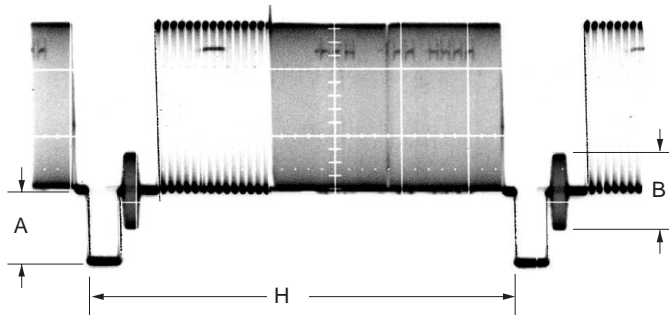


Fig. 6-3-9



3-5. AUDIO SYSTEM ADJUSTMENTS

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 6-3-10.

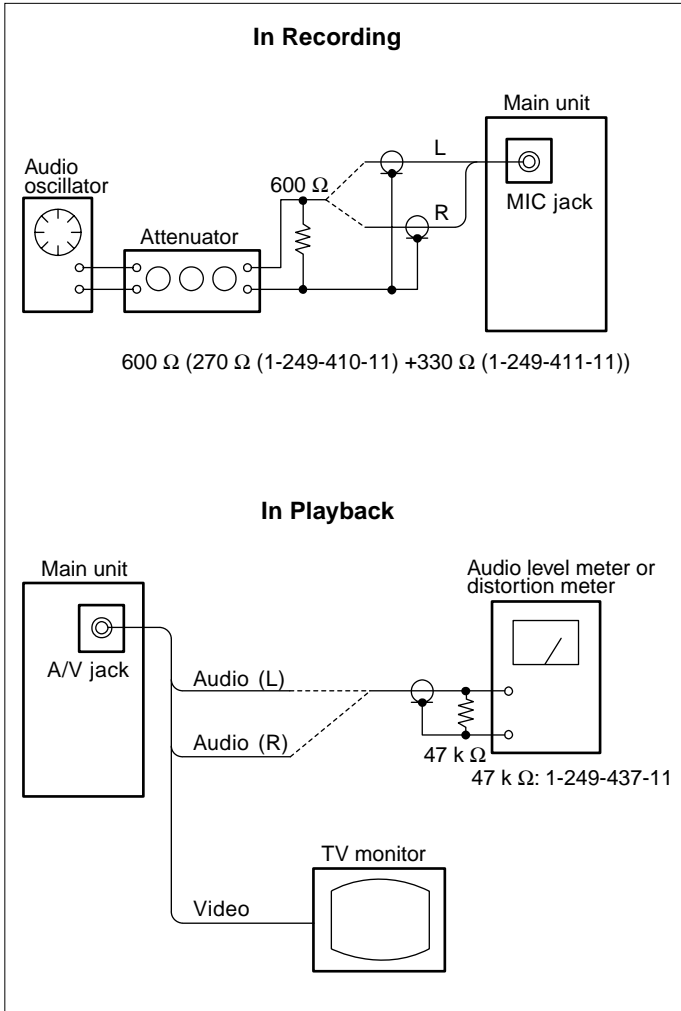


Fig. 6-3-10

1. Playback Level Check

Mode	VTR playback
Signal	Alignment tape: For audio operation check (XH5-3 (NTSC)) (XH5-3P (PAL))
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter and frequency counter
Specified Value	32 kHz mode: 1 kHz, + 3.0 ± 2.0 dBs 48 kHz mode: 1 kHz, + 3.0 ± 2.0 dBs 44.1 kHz mode: The 7.35 kHz signal level during EMP OFF is +2.0 ± 2.0 dBs. The 7.35 kHz signal level during EMP ON is -6 ± 2 dB from the signal level during EMP OFF.

Checking Method:

- 1) Check that the playback signal level is the specified value.

2. Overall Level Characteristics Check

Mode	Camera recording and playback
Signal	400 Hz, -66 dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter
Specified Value	-7.5 ± 3.0 dBs

Checking Method:

- 1) Input the 400 Hz, -66 dBs signal in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the 400 Hz signal level is the specified value.

3. Overall Distortion Check

Mode	Camera recording and playback
Signal	400 Hz, -66 dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200 Hz to 6 kHz BPF ON)

Checking Method:

- 1) Input the 400 Hz, -66 dBs signal in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the distortion is the specified value.

4. Overall Noise Level Check

Mode	Camera recording and playback
Signal	No signal: Insert a shorting plug in the MIC jack
Measurement Point	Audio left or right terminal of A/V jack
Measuring Instrument	Audio level meter
Specified Value	Below -45 dBs (IHF-A filter ON, 20 kHz LPF ON)

Checking Method:

- 1) Insert a shorting plug in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the noise level is the specified value.

5. Overall Separation Check

Mode	Camera recording and playback
Signal	400 Hz, -66 dBs signal: MIC jack <right> [left] (Connect the MIC jack <left> [right] to GND)
Measurement Point	Audio <left> [right] terminal of A/V jack
Measuring Instrument	Audio level meter
Specified Value	Below -40 dBs (IHF-A filter ON)

< > : Left channel check

[] : Right channel check

Checking Method:

- 1) Input the 400 Hz, -66 dBs signal in the <right> [left] terminal of the MIC jack only.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the signal level of the audio output <left> [right] terminal is the specified value.



6-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander

- 1) Connect the adjustment remote commander to the LANC terminal.
- 2) Set the HOLD switch of the adjustment remote commander to “HOLD” (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 6-4-1.



Fig. 6-4-1

- 3) Operate the adjustment remote commander as follows.
 - Changing the page
The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH- button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD Display	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal notation conversion value	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

- Changing the address
The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
 - Changing the data (Data setting)
The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
 - Writing the adjustment data
The PAUSE button must be pressed to write the adjustment data in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed)
- 4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.



4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

Lower digit of hexadecimal Upper digit of hexadecimal		②															
		0	1	2	3	4	5	6	7	8	9	A (H)	B (h)	C (c)	D (d)	E (E)	F (F)
0		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2		32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3		48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4		64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79
5		80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6		96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7		112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8		128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9		144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (H)		160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (h)		176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)		192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)		208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)		224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)		240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis () shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (h d);

Because the upper digit of the adjustment number is B (h), and the lower digit is D (d), the meeting point “189” of ① and ② in the above table is the corresponding decimal number.

Table 6-4-1



4-3. SERVICE MODE

Additional note on adjustment

Note: After the completion of the all adjustments, cancel the service mode by either of the following ways.

- 1) After data on page: D is restored, press the RESET button to reset the unit. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting)
- 2) After data on page: D is restored, select page: 0, address: 01, and return the data to 00. And when data on page: 2 and 3 are changed, return data to the original condition.

1. Setting the Test Mode

Page D	Address 10
--------	------------

Data	Function
00	Normal
01	Forced camera power ON
02	Forced VTR power ON
03	Forced camera + VTR power ON
05	Forced memory power ON

- Before setting the data , select page: 0, address: 01, and set data: 01.
- For page D, the data set will be recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off (8.4 Vdc).
- After completing adjustments/repairs, be sure to return the data of this address to 00, and press the PAUSE button of the adjustment remote commander. And select page: 0, address: 01, and set data: 00.

2. Emergence Memory Address

2-1. C Page Emergence Memory Address

Page C	Address F4 to FF
Address	Contents
F4	EMG code when first error occurs
F6	Upper: MSW code when shift starts when first error occurs Lower: MSW code when first error occurs
F7	Lower: MSW code to be moved when first error occurs
F8	EMG code when second error occurs
FA	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
FB	Lower: MSW code to be moved when second error occurs
FC	EMG code when last error occurs
FE	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
FF	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data “00” is written in the above addresses (F4 to FF). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (F4 to F7). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (F8 to FB). Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (FC to FF).

Note: After completing adjustments, be sure to initialize the data of addresses F4 to FF to “00”.

Initializing method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 37, and press the PAUSE button.
- 3) Select page: 0, address: 01, and set data: 00.

2-2. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in C page, addresses F4, F8 and FC . The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

2-3. MSW Code

MSW when errors occur:

Information on MSW (mode SW) when errors occur

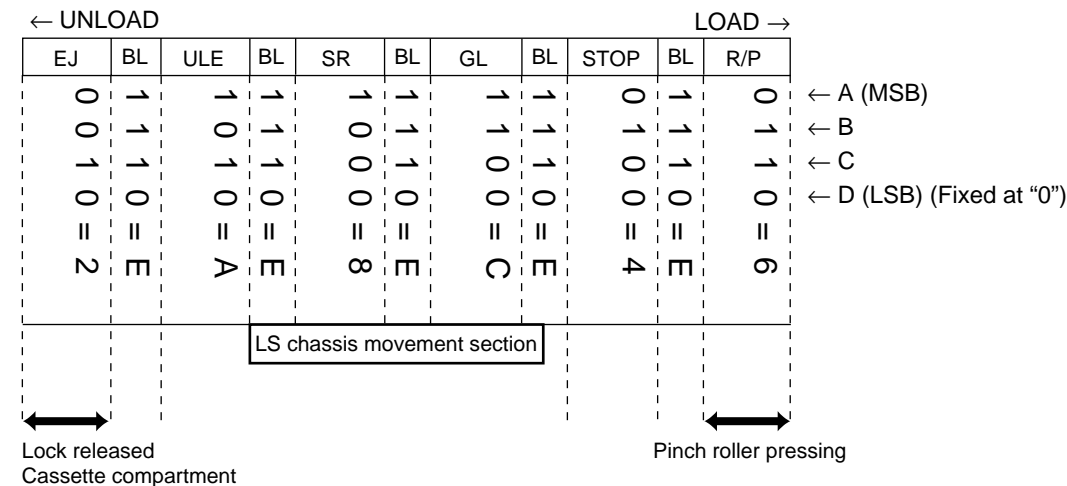
MSW when movement starts:

Information on MSW when movements starts when the mechanism position is moved (When the L motor is moved)

MSW of target of movement:

Information on target MSW of movement when the mechanism position is moved

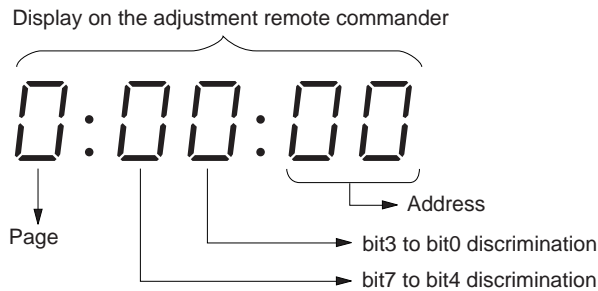
Mechanical Position



Position	Code	Contents
EJ	2	Position at which the cassette component lock is released, at the farthest unload side mechanically at which the mechanism can move no further in the UNLOAD direction.
BL	E	BLANK code, at the boundary between codes.
ULE	A	EJECT completion position. when the cassette is ejected, the mechanism will stop at this position. Cassette IN standby. The guide will start protruding out as the mechanism moves towards the LOAD position.
SR	8	Position at which it is possible to release the S ratchet.
GL	C	Guide loading are performed here.
STOP	4	Stop position in the loading state. The pinch roller separates, the tension regulator returns, and the brake is imposed on both reels.
R/P	6	PB, REC, CUE, REVIEW, PAUSE positions. When pinch roller is pressed, and the tension regulator is ON, the mechanism is operating at this position in modes in which normal images are shown.
NULL	0	Code not existing in the MD. Default value.
	F	Status before finding any mechanism position.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".



(Example) If the remote commander display is "8E", bit value from bit 7 to bit 4 can be discriminated from the column ㉠, and those from bit 3 to bit 0 from column ㉡.

Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
㉠ 8	1	0	0	0
9	1	0	0	1
A (H)	1	0	1	0
B (h)	1	0	1	1
C (L)	1	1	0	0
D (d)	1	1	0	1
㉡ E (E)	1	1	1	0
F (F)	1	1	1	1

4. Jack Check (1)

Page 7	Address 0C
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
1	MIC jack (MA-410 board J5901)	Used	Not used
2	VIDEO/AUDIO jack (JK-222 board J404)	Used	Not used
3	S VIDEO jack (JK-222 block J401)	Used	Not used

Using method:

- 1) Select page: 7, address: 0C.
- 2) By discriminating the bit value of display data, the state of jack can be discriminated.

5. Jack Check (2)

Page 3	Address 61
--------	------------

Bit	Function	When bit value = 1	When bit value = 0
6	Head Phone jack (JK-222 block J403)	Used	Not used

Using method:

- 1) Select page: 3, address: 61.
- 2) By discriminating the bit value of display data, the state of jack can be discriminated.

6. Switch Check

Page 2	Address 61 to 66
--------	------------------

Using method:

- 1) Select page: 2, address: 61 to 66.
- 2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00	19	32	4E	6F	96	C1	EB
	00 to 0C	0D to 24	25 to 3F	40 to 5D	5E to 81	82 to AA	AB to D7	D8 to FF
61 (KEY AD1) (IC3101 ⑥)		PHOTO (REC) (CF-1870 block) (S001)	NETWORK *1 (FP-497 flexible) (S001)	FADER (FP-504 flexible) (S604)	FLASH (FP-504 flexible) (S603)	FOCUS INFINITY (FP-504 flexible) (S601)	FOCUS AUTO/ PUSH AUTO (FP-504 flexible) (S601, S602)	FOCUS MAN (FP-504 flexible) (S601)
62 (KEY AD2) (IC3101 ⑥)		SEL/PUSH EXEC (EXEC) (KP-1870 block) (S007)	DATA CODE (CK-116 board) (S5203)	EDIT SEARCH – (CK-116 board) (S5204)	EDIT SEARCH + (CK-116 board) (S5205)	ZEBRA 100 (CK-116 board) (S5202)	ZEBRA OFF (CK-116 board) (S5202)	ZEBRA 70 (CK-116 board) (S5202)
63 (KEY AD3) (IC3101 ⑥)	STOP (CK-116 board) (S5206)	REW (CK-116 board) (S5207)	PLAY (CK-116 board) (S5208)	FF (CK-116 board) (S5209)		REC (CK-116 board) (S5211, S5212)	PANEL CLOSE (FP-495 flexible) (S001)	PANEL OPEN (FP-495 flexible) (S001)
64 (KEY AD4) (IC3101 ⑥)	COLOR BAR (CK-116 board) (S5213)	VOLUME + (CK-116 board) (S5214)	VOLUME – (CK-116 board) (S5215)	DISPLAY/ TOUCH PANEL (CK-116 board) (S5216)	MENU (KP-1870 block) (S001)	AUDIO DUB (CK-116 board) (S5217)	PANEL REVERSE (FP-495 flexible) (S002)	PANEL NORMAL (FP-495 flexible) (S002)
65 (KEY AD5) (IC3101 ⑥)	AUDIO LEVEL (KP-1870 block) (S002)	EXPOSURE (KP-1870 block) (S003)	WHITE BAL (KP-1870 block) (S004)	SHUTTER SPEED (KP-1870 block) (S005)	PROGRAM AE (KP-1870 block) (S006)	AUTO LOCK (AUTO LOCK) (CK-116 board) (S5201)	AUTO LOCK (HOLD) (CK-116 board) (S5201)	AUTO LOCK (RELEASE) (CK-116 board) (S5201)
66 (KEY AD6) (IC3101 ⑥)				PAUSE (CK-116 board) (S5210)	BACK LIGHT (CK-116 board) (S5218)	SPOT LIGHT (CK-116 board) (S5219)	CUSTOM PRESET (CK-116 board) (S5220)	No key input

*1: DCR-TRV950/TRV950E only

7. LED, LCD (Display Window) Check

Page 7	Address 07	Bit4, Bit5
--------	------------	------------

Using method:

- 1) Select page: 7, address: 07, and set the bit value of Bit4 and Bit5 to “1”.
- 2) Check that the LED (Camera recording, Flash) are lit and all segments of LCD (display window) are lit.
- 3) Select page: 7, address: 07, and set the bit value of Bit4 and Bit5 to “0”.

8. Record of Use Check (1)

Page 7	Address A7 to A9
--------	------------------

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (CK-116 board BT5201) is removed.

Note 2: When the drum was replaced, initialize the drum rotation counted time.

Note 3: Check that the data of page: 0, address: 10 is "00".

Address	Function		Remarks
A7	Drum rotation counted time (BCD code)	Hour (H)	100000th place digit and 10000th place digit of counted time (decimal digit)
A8		Hour (M)	1000th place digit and 100th place digit of counted time (decimal digit)
A9		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)

Using method:

- 1) The record of use data is displayed at page: 7, addresses: A7 to A9.

Initializing method of drum rotation counted time:

- 1) Select page: 7, address: 00, and set data: 71.
- 2) Select page: 7, address: 01, set data: 71, and press the PAUSE button.
- 3) Select page: 7, address: 02, and check that the data is "01".

9. Record of Use Check (2)

Page 7	Address C8 to CD
--------	------------------

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (CK-116 board BT5201) is removed.

Note 2: Check that the data of page: 0, address 10 is "00".

Address	Function		Remarks
C8	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next
C9		Month	
CA		Day	
CB	Final condensation occurrence date (BCD code)	Year	
CC		Month	
CD		Day	

Using method:

- 1) The record of use data is displayed at page: 7, addresses: C8 to CD.

10. Record of Self-diagnosis check

Page 7	Address B0 to C6
--------	------------------

Note 1: This data will not be erased (reset) when the lithium 3 V power supply (CK-116 board BT5201) is removed.

Note 2: Check that the data of page: 0, address 10 is "00".

Address	Self-diagnosis code
B0	"Repaired by" code (Occurred 1st time) *1
B1	"Block function" code (Occurred 1st time)
B2	"Detailed" code (Occurred 1st time)
B4	"Repaired by" code (Occurred 2nd time) *1
B5	"Block function" code (Occurred 2nd time)
B6	"Detailed" code (Occurred 2nd time)
B8	"Repaired by" code (Occurred 3rd time) *1
B9	"Block function" code (Occurred 3rd time)
BA	"Detailed" code (Occurred 3rd time)
BC	"Repaired by" code (Occurred 4th time) *1
BD	"Block function" code (Occurred 4th time)
BE	"Detailed" code (Occurred 4th time)
C0	"Repaired by" code (Occurred 5th time) *1
C1	"Block function" code (Occurred 5th time)
C2	"Detailed" code (Occurred 5th time)
C4	"Repaired by" code (Occurred the last time) *1
C5	"Block function" code (Occurred the last time)
C6	"Detailed" code (Occurred the last time)

*1 : "01" → "C", "03" → "E"

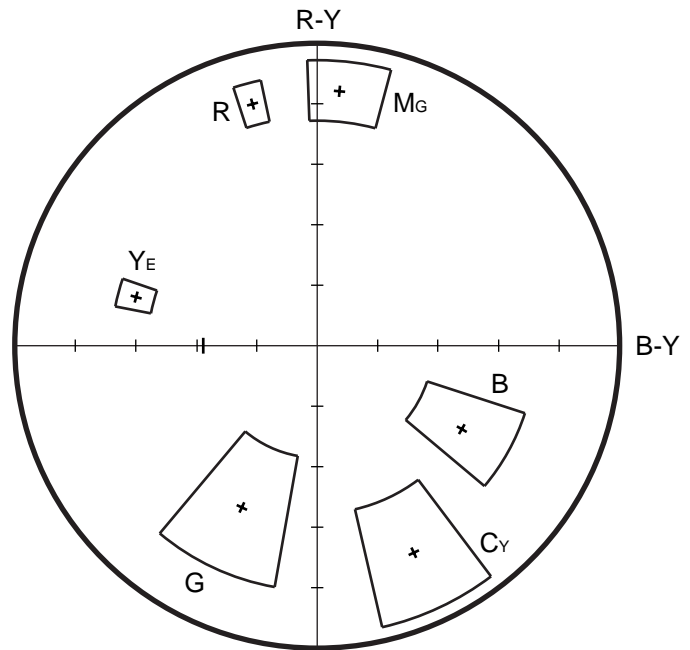
Using method:

- 1) The past self-diagnosis codes are displayed at page: 7, address: B0 to C6. Refer to "1-6. SELF-DIAGNOSIS FUNCTION" of "SERVICE MANUAL, LEVEL 2 (992997831.pdf)" for detail of the self-diagnosis code.

FOR CAMERA COLOR REPRODUCTION ADJUSTMENT

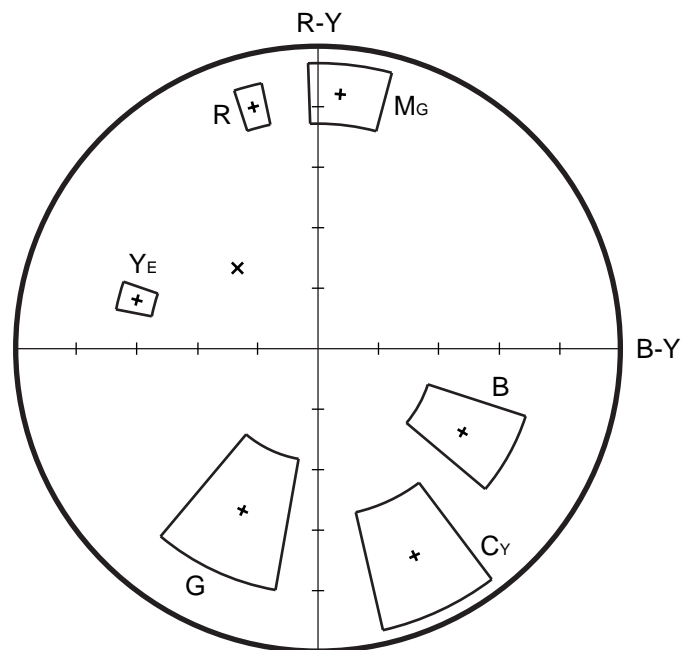
Take a copy of CAMERA COLOR
REPRODUCTION FRAME with a
clear sheet for use.

For NTSC model



DCR-TRV940/TRV950

For PAL model



DCR-TRV940E/TRV950E

Revision History

Ver.	Date	History	Contents	S.M. Rev. issued
1.0	2002.05	Official Release	—	—

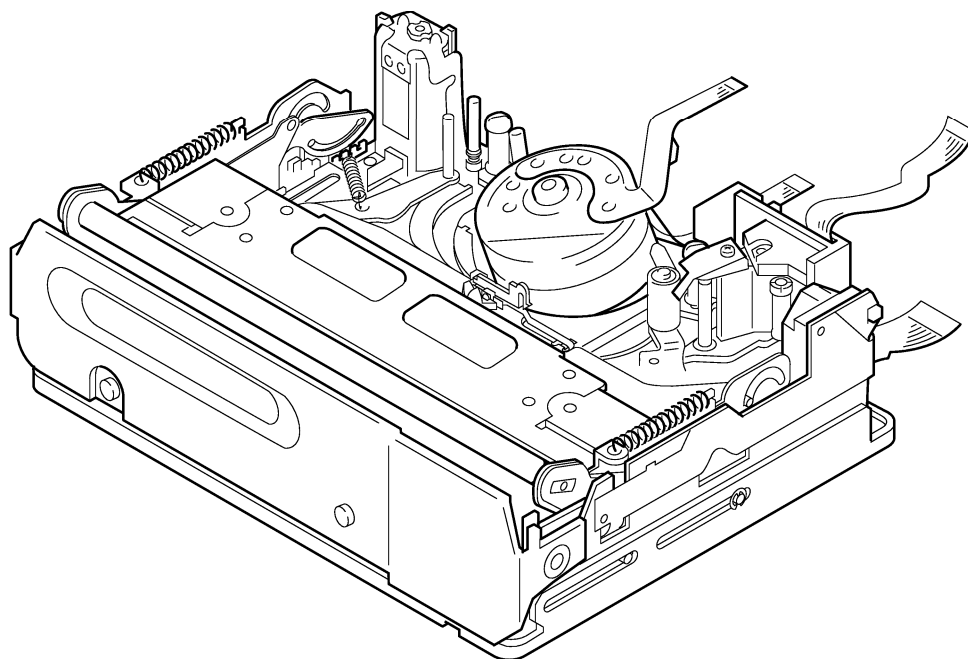
DV MECHANICAL ADJUSTMENT MANUAL VI

Ver 1.0 2000.3

J MECHANISM

Mini DV Digital
Video
Cassette

Please use this manual with the service manual of the respective models.



Digital MECHANISM DECK

SONY®

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1. Preparations for Check, Adjustment and Replacement of Mechanism Block

- Refer to the “DISASSEMBLY” section of the SERVICE MANUAL of the respective models for details of removing cabinets and printed wiring boards.
- When making any adjustment to a mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section “2-5. Mode Selector II” for details on how to enter the mode shown in a rectangle mode in subsequent paragraphs of this manual.

1-1. Cassette Compartment Assy, Damper Assy

1. Removal Procedure

- 1) Set the EJ mode.
- 2) When the cassette compartment moves up in the direction of the arrow **(B)**, establish the ULE mode.
- 3) Release the two claws **(1)** and dowel of the damper assy and remove the damper assy.
- 4) Remove the shaft of the holder arm from the damper arm.
- 5) Remove the two screws (M1.4 × 2) **(2)**.
- 6) Lift up the LS frame in the direction of the arrow **(C)**.
- 7) Lift up the cassette compartment block assy in the direction of the arrow **(A)**. While pushing the holder arm in the direction of the inside arrow **(E)**, remove the cassette compartment block assy.

2. Attachment procedure

- 1) Set the ULE mode.
- 2) Attach the holder arm of the cassette compartment block assy to the cassette compartment slide shaft on both sides of the LS chassis block assy from inside.
- 3) Install the LS frame pivot into the groove **(D)** of the LS chassis. Drop down the LS frame in the direction opposite to **(C)**.
- 4) Hook the LS frame T-side bent portion on the LS chassis notch **(F)**.
- 5) Attach the LS frame with two screws (M1.4 × 2) **(2)**. Tightening torque: $0.054 \pm 0.01 \text{ N} \cdot \text{m}$ (0.6 kg•cm).
- 6) While inserting the damper shaft of the cassette compartment block assy into slot of the damper arm, engage the two claws **(1)** with the notch of the LS chassis block assy, and fix the dowel to the corresponding hole of the LS chassis block assy respectively.

Note: Check that the two claws **(1)** and dowel do not come off.

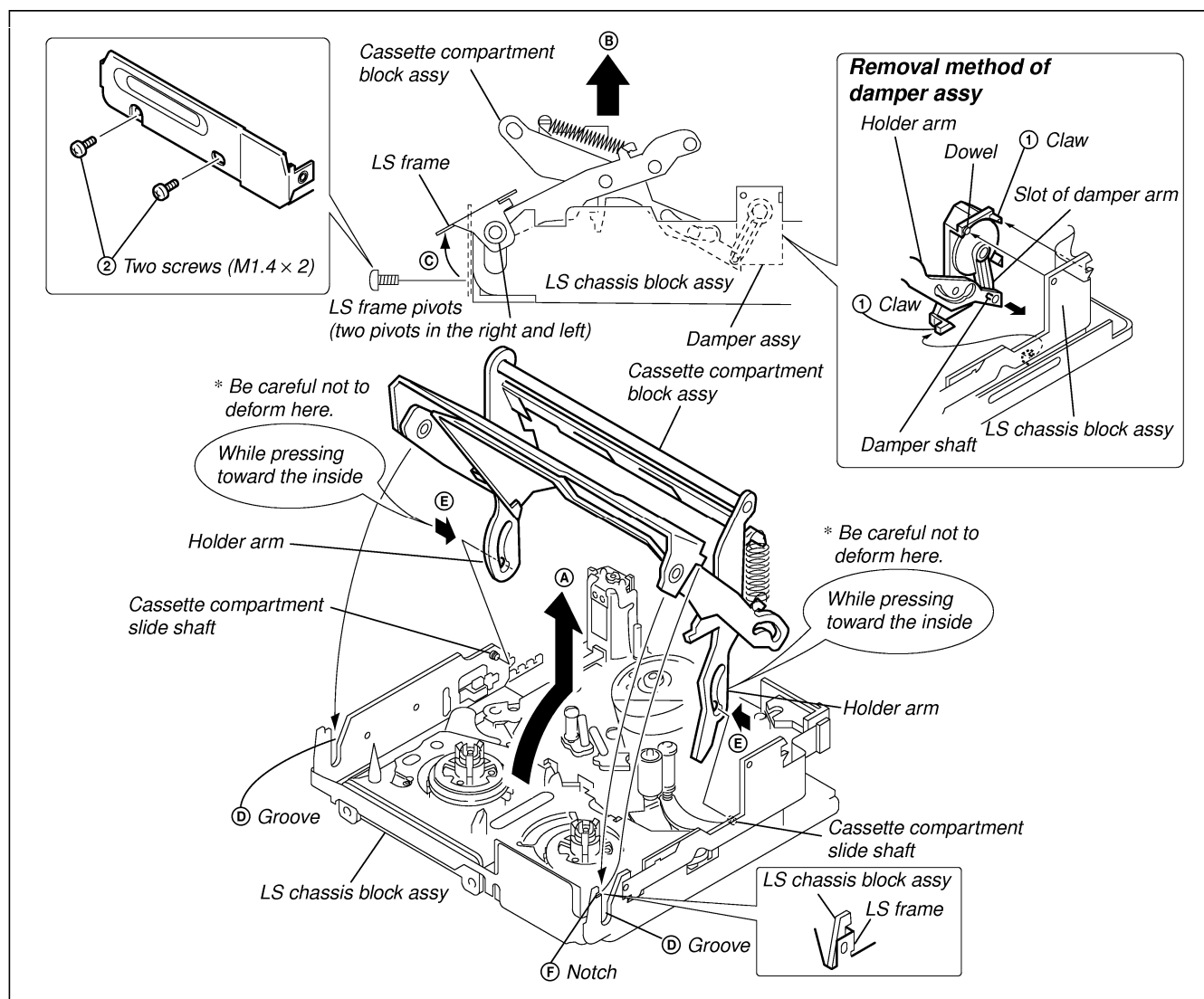


Fig. 1-1

2. Periodic Inspection and Maintenance

- Be sure to perform the following maintenance and inspection so that the machine delivers its full performance and functions, and to protect the machine and tape. Also, perform the following maintenance items after completing the repair work, regardless of the number of hours the machine has been operated by the user.

2-1. Rotary Drum Cleaning

- 1) Press a wiping cloth (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counter-clockwise direction to clean the rotary drum.

Caution: Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

2-2. Tape Path System Cleaning (Refer to Fig. 2-1.)

- 1) Set the EJECT state. Clean the tape running path (TG-1, -2, -3, -4, -5, -6 and -7, pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. J-3) moistened with cleaning fluid.

Note 1: Be careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. J-3).

Note 2: Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.

Note 3: When cleaning the capstan shaft, be carefull not to move the oil seal. If the oil seal is moved, oil will leak.

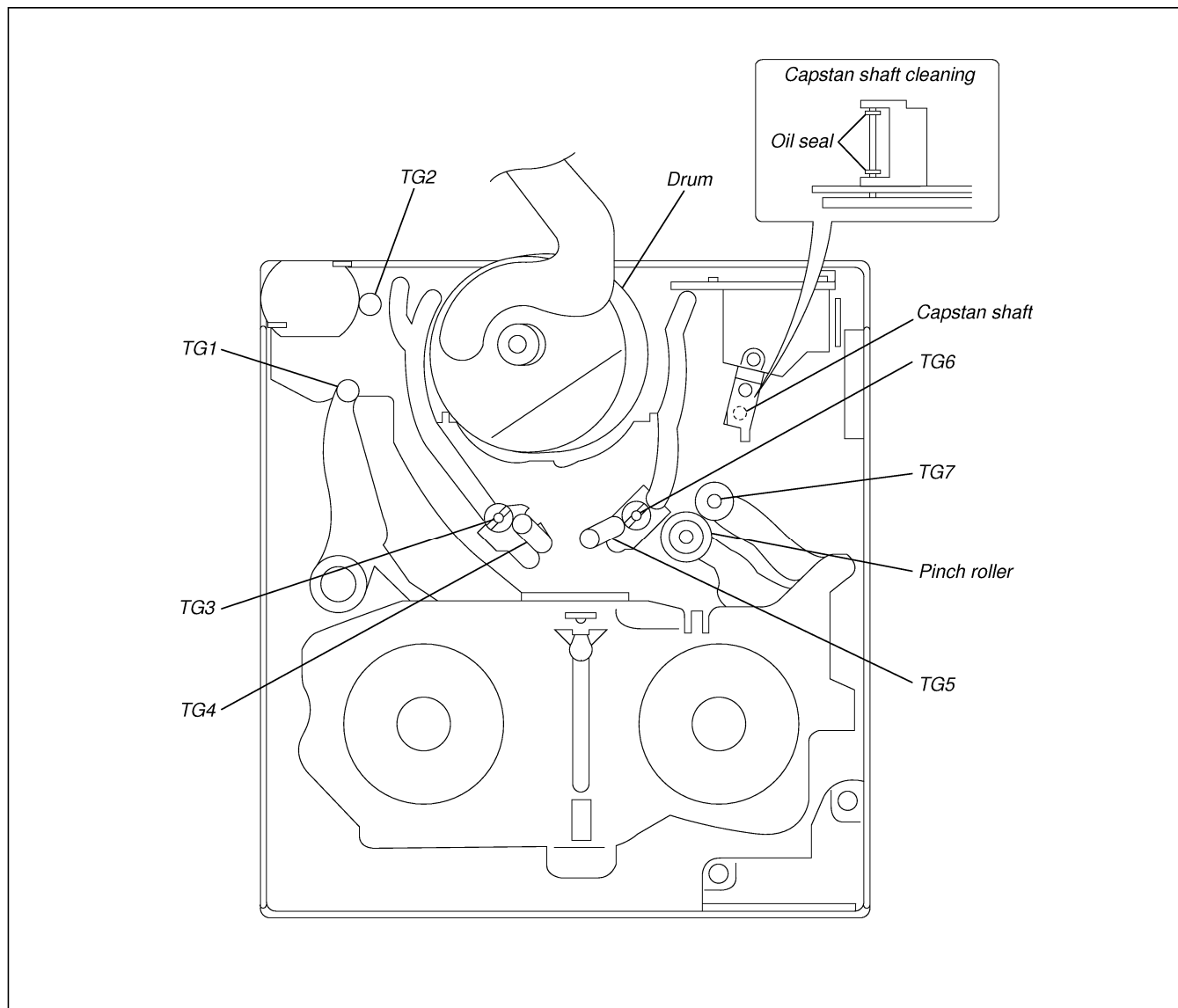


Fig. 2-1

2-3. Periodic Inspection List

Maintenance and inspection item		Operating hours (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Tape running surface cleaning	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
	Rotary drum cleaning and degaussing	○	○	○	○	○	○	○	○	○	○	Be careful not to attach oil
Drive mechanism	Capstan bearing	—	☆	—	☆	—	☆	—	☆	—	☆	
	Loading motor	—	☆	—	☆	—	☆	—	☆	—	☆	
Performance check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back-tension measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake system	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD/RVS torque measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○: Cleaning, ☆: Check

Note 1: When the machine is overhauled, replace the parts referring to the above list.

Note 2: Grease

- Be sure to use the specified grease only. (If grease of different viscosity is used, it can cause various troubles.)
- The grease used for bearings must not contain any dust or other matter, otherwise excessive abrasion and seizure of the bearing could occur.
- A drop of grease means the amount of grease as shown in the illustration, which is the amount that is attracted to the tip of a rod of 2 mm diameter.
- FLOIL grease (SG-941): Part No. 7-662-001-39

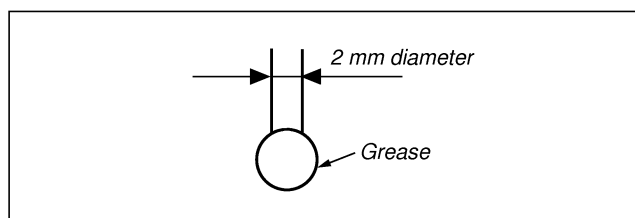


Fig. 2-2

2-4. Service Jigs and Tools

Ref. No.	Name	Part code	Jig inscription	Used for
J-1	Cleaning fluid	Y-2031-001-0		
J-2	Wiping cloth	7-741-900-53		
J-3	Super-fine applicator (made by Nippon Applicator (P752D))	—		
J-4	Mirror (small oval type)	J-6080-840-A	GD-2038	Tape path
J-5	Tracking tape (XH2-1) (NTSC, PAL)	8-967-997-01		Tape path
J-6	Mini DV torque cassette	J-6082-360-A		
J-7	TG1 adjustment jig (FWD position adjustment)	J-6082-492-A		
J-8	TG1 FWD adjustment screwdriver	J-6082-364-A		For TG1 FWD position adjustment
J-9	Dummy drum (for TG36) (J mechanism)	J-6082-490-A		
J-10	TG36 gauge	J-6082-491-A		
J-11	Torque screwdriver	J-9049-330-A		
J-12	Tape path screwdriver	J-6082-026-A		For tape path adjustment
J-13	Adjustment remote commander (RM-95 upgraded) * Note 1	J-6082-053-B		
J-14	Mode Selector II	J-6082-282-B		General adjustment (ROM version 1.7)
J-15	Mode Selector II conversion board (J)	J-6082-493-A		
J-16	Mode Selector II ROM (supporting J mechanism) * Note 2	J-6082-314-E		ROM for Mode Selector II

Other required equipment: Oscilloscope

Note 1: If the microprocessor in the adjustment remote commander is not the new one (UPD7503G-C56-12), the pages cannot be switched. In this case, replace it with the new microprocessor (8-759-148-35).

Note 2: This is the ROM used for upgrading the version of Mode Selector II to enable it to be used for the J mechanism.

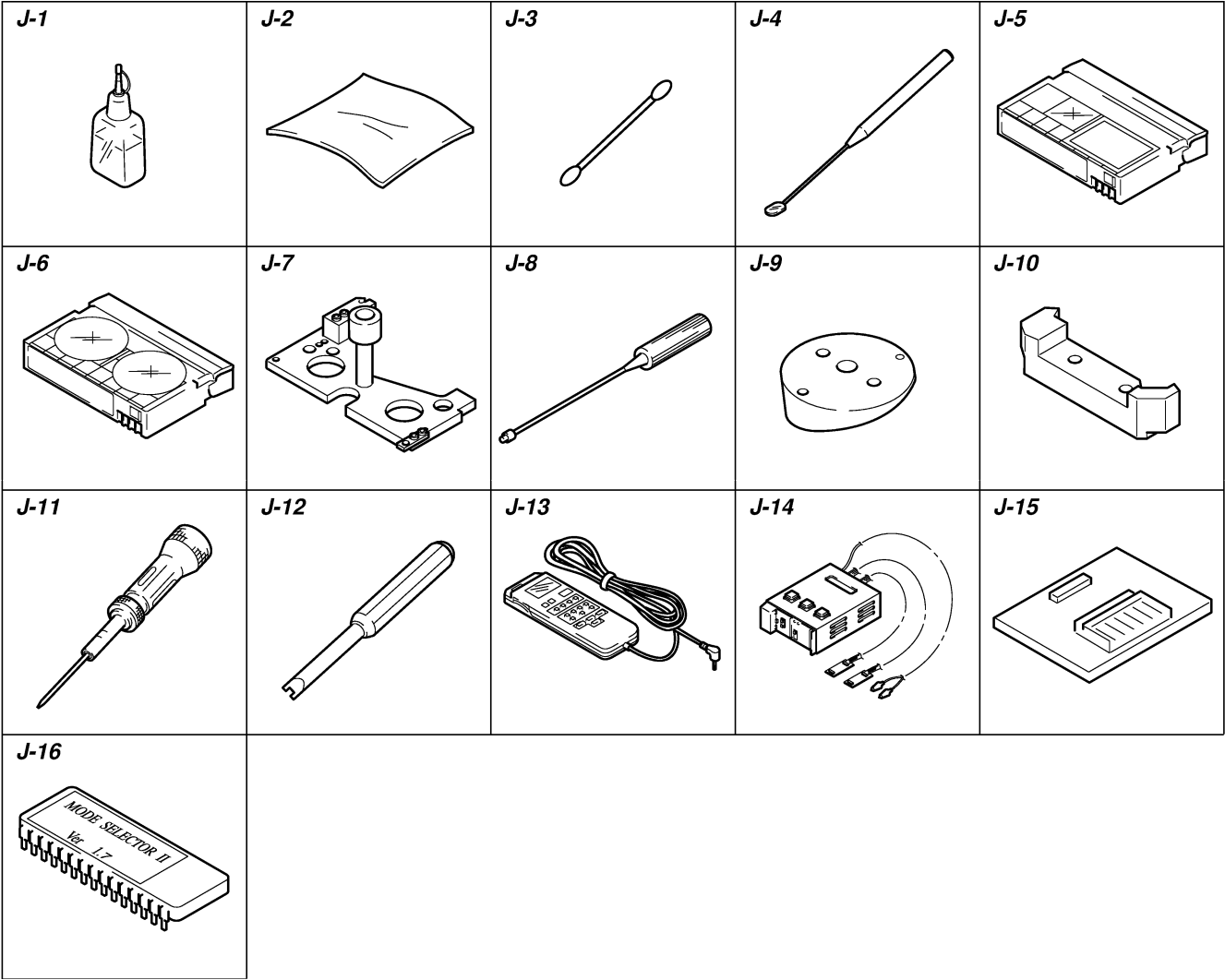


Fig. 2-3

2-5. Mode Selector II Operating Procedure

2-5-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the “NG” indication appears and the mechanism stops moving.

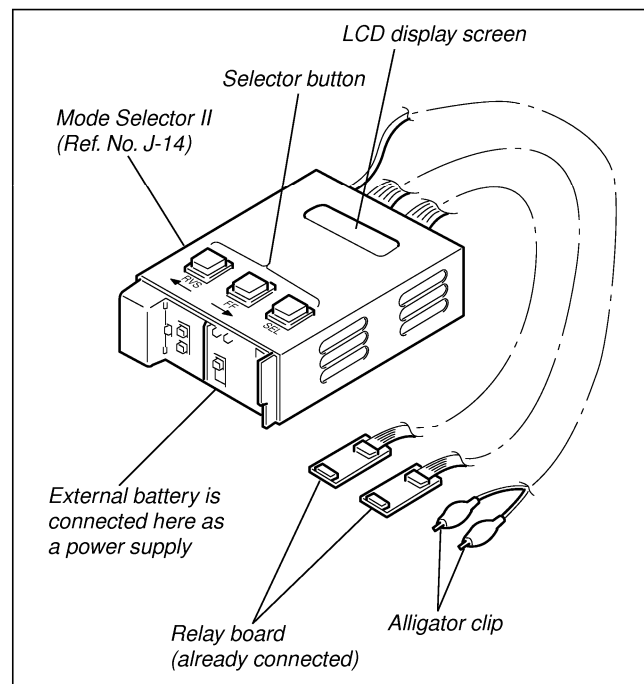


Fig. 2-4

Mode Selector II (J-6082-282-B) connection diagram

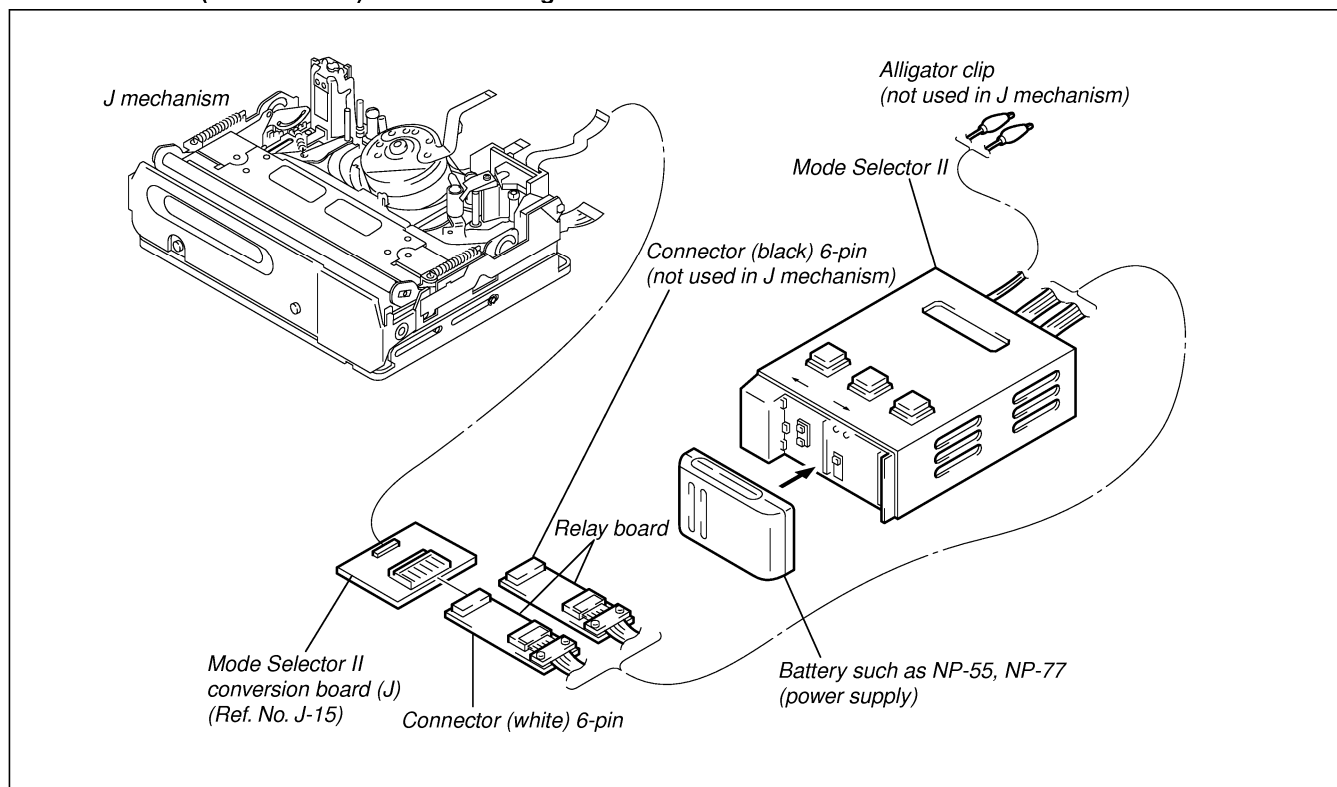
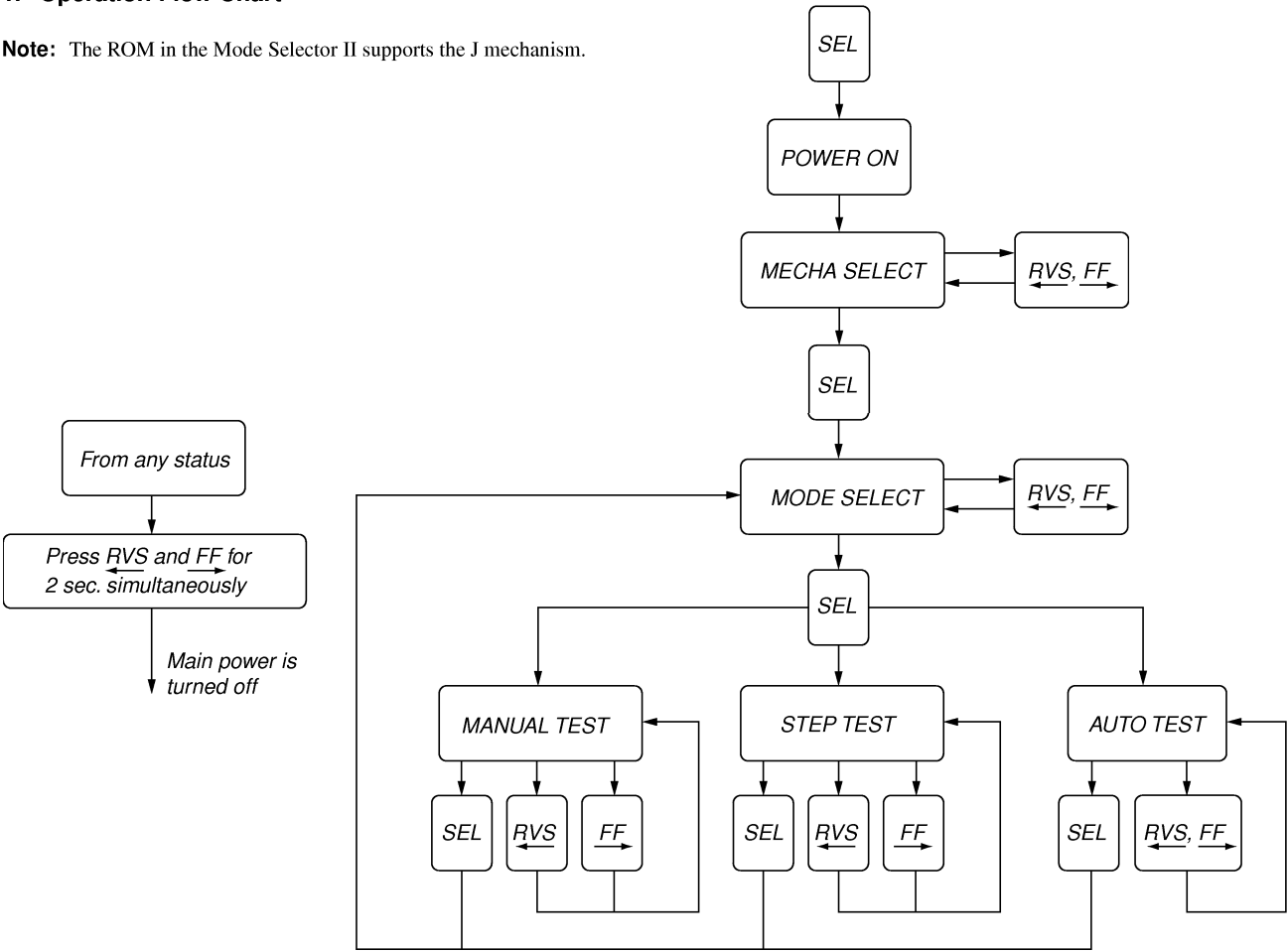


Fig. 2-5

2-5-2. Operation

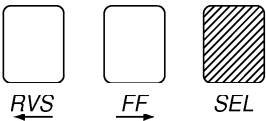
1. Operation Flow Chart

Note: The ROM in the Mode Selector II supports the J mechanism.



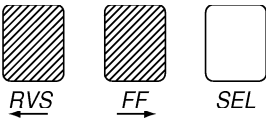
2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows.
Press the SEL button.



3. Mode Selector II Power Off

Turn off the main power of the Mode Selector II as follows.
Press the RVS and FF buttons at the same time for 2 seconds or longer while the power is on.



4. Mecha Select

When the main power is turned on, the MECHA SELECT display appears on the LCD screen. Select the desired mechanism name using the **RVS** and **FF** buttons. Selection is complete when the **SEL** button is pressed. (Fig. A shows the J mechanism.)

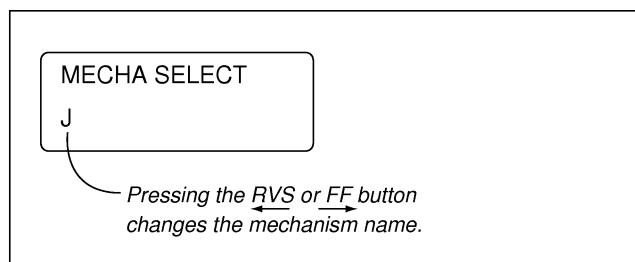


Fig. a

5. Test Type Select

Using the **RVS** and **FF** buttons, select a desired test type from the three types of "MANUAL", "STEP" and "AUTO". Selection is complete when the **SEL** button is pressed.

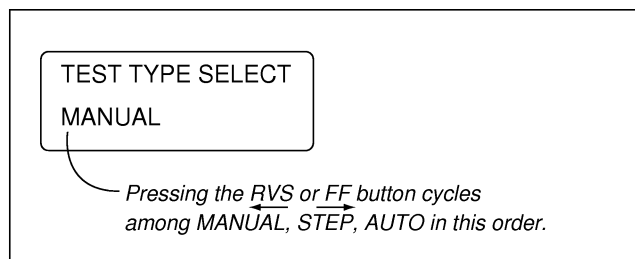


Fig. b

6. Manual Test

In this test, the motor of the mechanism deck is turned on only during the period while the **RVS** or **FF** button is pressed manually.

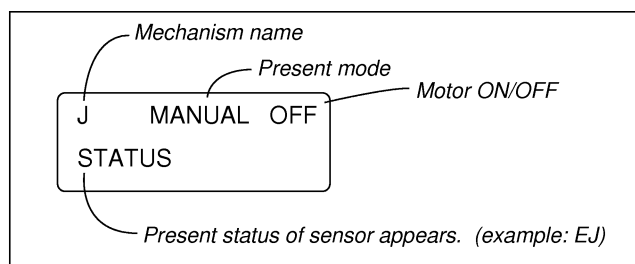


Fig. c

7. Step Test

In this test, the direction of motor movement is determined by the **RVS** and **FF** buttons. The motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information.

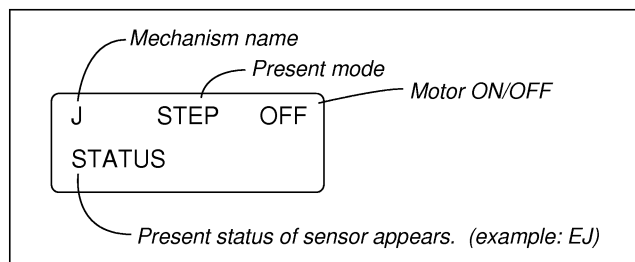


Fig. d

8. Auto Test

In this test, the mechanism deck is tested as to whether it performs a series of movements correctly in accordance with the operation sequence that is memorized earlier for each type of deck, by checking the output signals from sensors with the stored memory. Turning on the **RVS** or **FF** button performs the same operation.

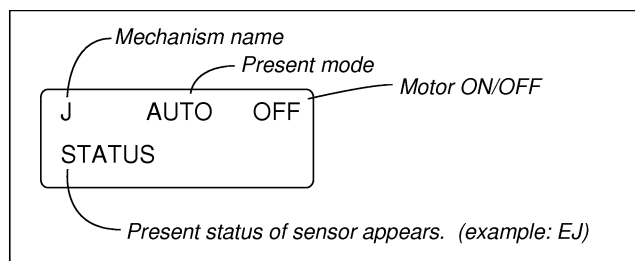


Fig. e

2-5-3. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)
EJ↔ULE↔SR↔GL↔STOP↔RP

MD name				J Mechanism
Code				
A	B	C		
0	0	1	1	EJ
1	0	1	2	ULE
1	0	0	3	SR
1	1	0	4	GL
0	1	0	5	STOP
0	1	1	6	RP

2-5-4. Battery Alarm Indication

When the level of the battery used to supply power to this system decreases, this display appears asynchronously. When this happens, all operations are disabled and the battery must be replaced.

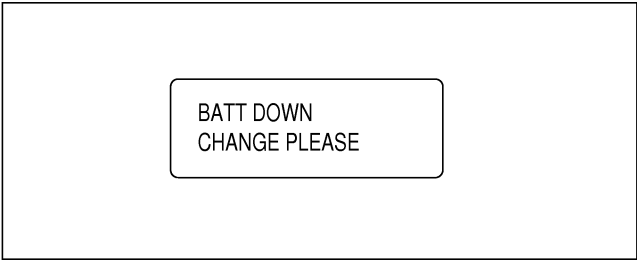


Fig. f

3. Check, Adjustment and Replacement of Mechanical Parts

3-1. Drum

1. Removal procedure

- 1) Loosen the three screws (M1.4 × 2) ① fixing the drum and remove the drum.

2. Attachment procedure

- 1) Align the two reference holes A and B on the rear of the drum with the position setting reference pins A and B of the drum base assy.
- 2) Install the drum with the three screws (M1.4 × 2) ① and tighten the screws in order from ①, then ② and finally ③.
Tightening torque: $0.059 \pm 0.01 \text{ N}\cdot\text{m}$ (0.6 kg \cdot cm)
- 3) Clean the drum referring to section 2-1.
- 4) Perform the tape path adjustment. (Refer to section 4, "Tape Path Adjustment".)

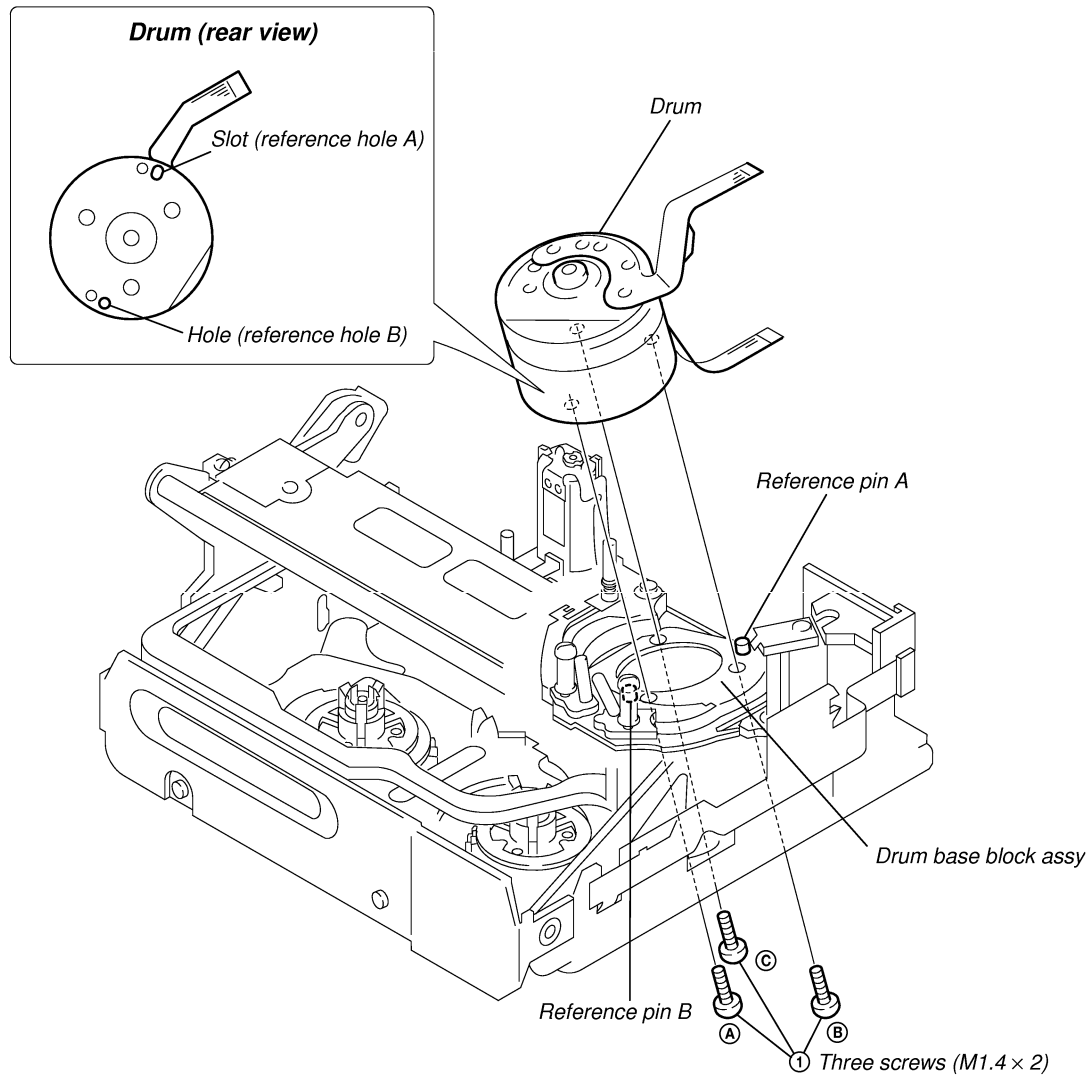


Fig.3-1

3-2. L. Motor Holder Block Assy (Loading) and FP-228 Flexible Wiring Board (DEW Sensor)

1. Removal procedure

- 1) Remove soldering ② from the L motor holder block assy (loading). Remove the FP-100 flexible wiring board.
- 2) Remove soldering ③ from the flexible wiring board FP-100. Remove the FP-228 flexible wiring board (DEW sensor).

Note: Since the FP-228 flexible wiring board (DEW sensor) is attached to the motor shield by adhesive agent, be careful not to break the flexible board when removing soldering.

- 3) Remove the screw (M1.4 × 2.5) ①.
- 4) Remove the L motor holder block assy.
- 5) Unlock the claw ⑤ and remove the worm shaft.
- 6) Remove the motor shield.
- 7) Unlock the two claws ④ of the motor holder. Remove the L motor block assy (loading) in the direction of ⑥.

Note: Be careful not to touch the DEW sensor.

2. Attachment procedure

- 1) Check the direction of the polarity marking ③ of the L motor block assy (loading). Attach the L motor block assy (loading) to the motor holder so that the L motor block assy (loading) faces the worm shaft side.
 - 2) While aligning the slot and dowel with the motor shield, attach the motor holder to the motor holder.
 - 3) Apply grease (1/2 drop) between the worm shaft gear and gear tooth.
 - 4) While the worm gear is engaged with the worm shaft gear, insert the worm shaft tip into the groove ② and fix the worm shaft under the claw ⑤.
 - 5) While aligning the chassis's two square holes with the two round holes, attach the motor holder block assy with the screw (M1.4 × 2.5) ①.
- Tightening torque: $0.059 \pm 0.01 \text{ N}\cdot\text{m}$ (0.6 kg \cdot cm)
- 6) Connect FP-228 (DEW sensor) to the FP-100 flexible wiring board by soldering. Attach the DEW sensor to the motor shield.
 - 7) Connect the FP-100 flexible wiring board to the motor holder block assy (loading) by soldering.

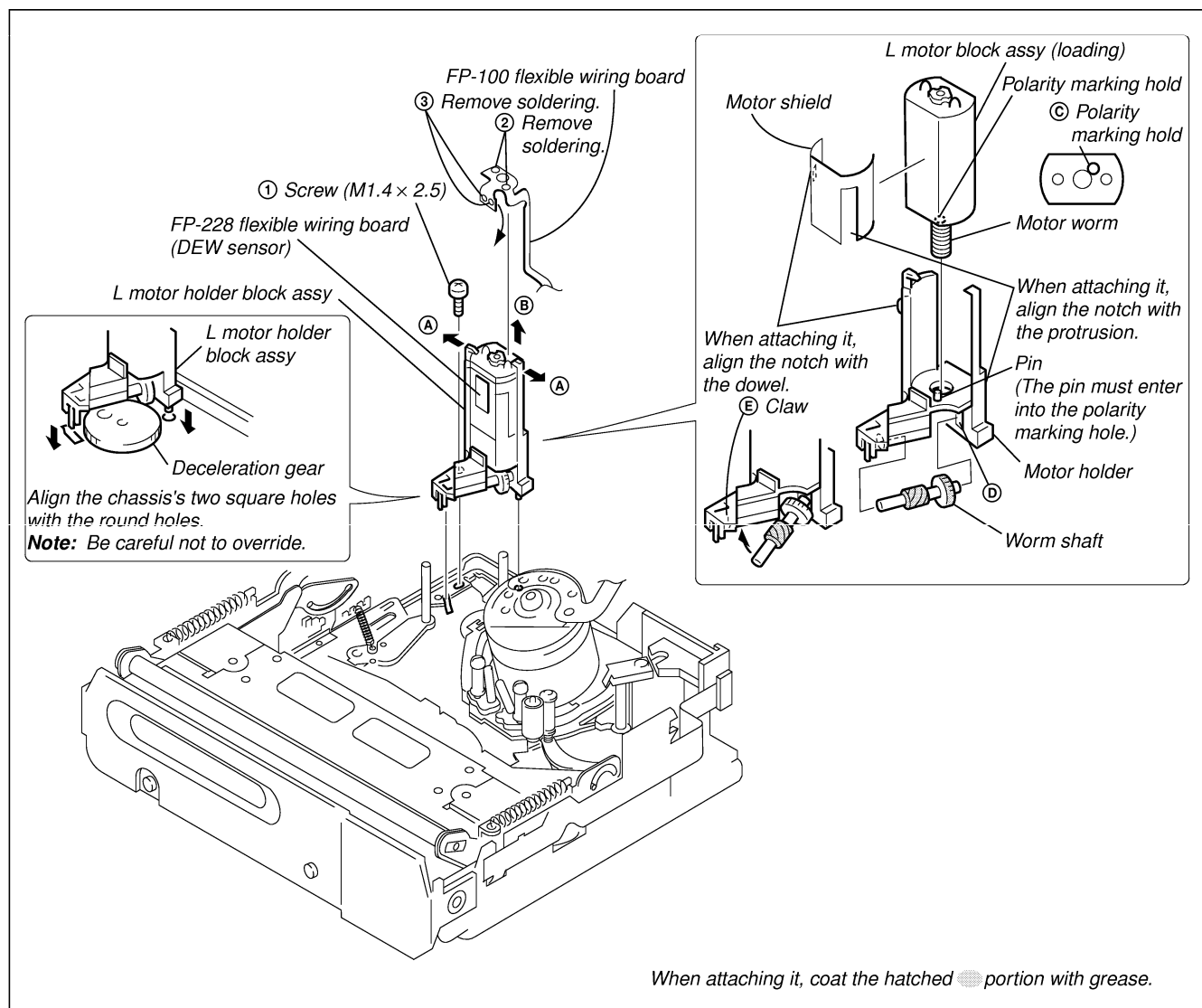


Fig. 3-2

3-3. Retainer Plate Assy, LED Retainer

1. Removal procedure

- 1) While pressing the claw of the LED retainer in the direction of the arrow ①, remove the LED retainer.
- 2) Remove the LED portion ② of the FP-102 flexible wiring board.
- 3) Remove the two screws (M1.4 × 1.4) ①.
- 4) In order to remove the retainer plate assy, because it is hooked with shaft A, shaft B and shaft C, remove the retainer plate assy while moving it in the direction of the arrow ②.

2. Attachment procedure

- 1) Hook shaft A, shaft B and shaft C on notch A, notch B and notch C of the retainer plate assy in this order.
- 2) Attach the retainer plate assy with two screws (M1.4 × 1.4) ①. Tightening torque: $0.059 \pm 0.01 \text{ N} \cdot \text{m}$ (0.6 kg·cm)
- 3) Route the FP-102 flexible wiring board as shown and install the LED into the prism as shown.
- 4) Hook the LED retainer on ④, attach it to ⑤ and fix them.

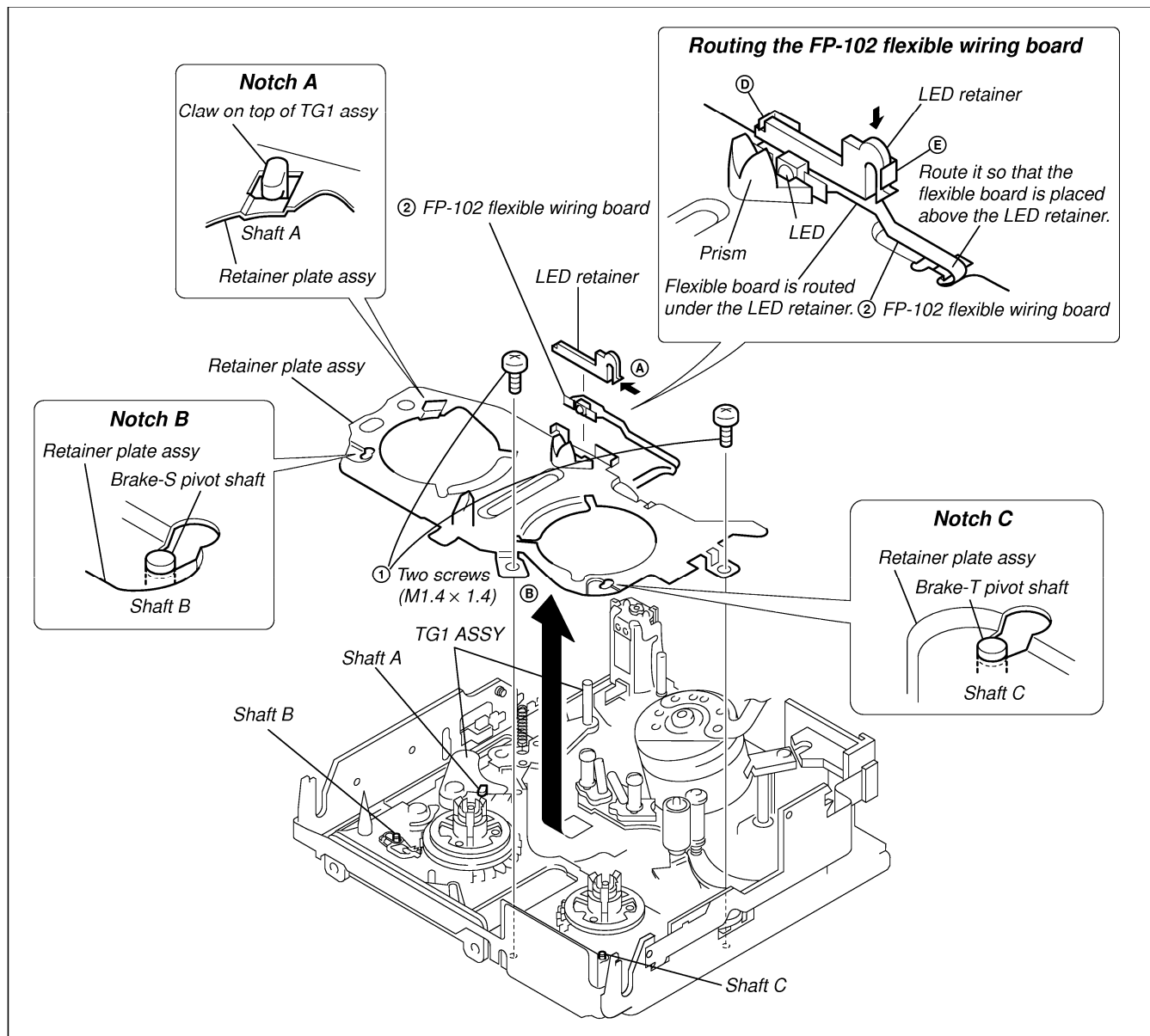


Fig. 3-3

3-4. Brake-T Block Assy, T-reel Table Assy, Gooseneck Gear Assy

1. Removal procedure

- 1) Remove the brake-T block assy from the brake-T pivot shaft.
- 2) While pressing the reel claw retainer (A) of the T-reel table assy down in the direction of (B), remove the reel claw (C).
- 3) Remove the gooseneck assy from the relay gear shaft.

Note: Be careful not to break the reel claw.

2. Attachment procedure

- 1) Insert the gooseneck gear assy into the center hole of the relay gear shaft. Bend the gooseneck gear assy to the S-reel table assy side.
- 2) Attach the brake-T block assy to the brake-T pivot shaft (D).
- 3) Move the brake-T counter-clockwise so that T-brake is freed. While pressing down the reel claw of the T-reel assy, fix the T-reel to the reel shaft-T by rotating the reel.
- 4) Check that the brake spring-T works correctly by rotating the T-reel table assy 30 degrees in the clockwise and counter-clockwise directions.

Note: The retainer on top of the brake spring-T must be hooked on the brake-T pivot shaft (D) and moved down to the groove.

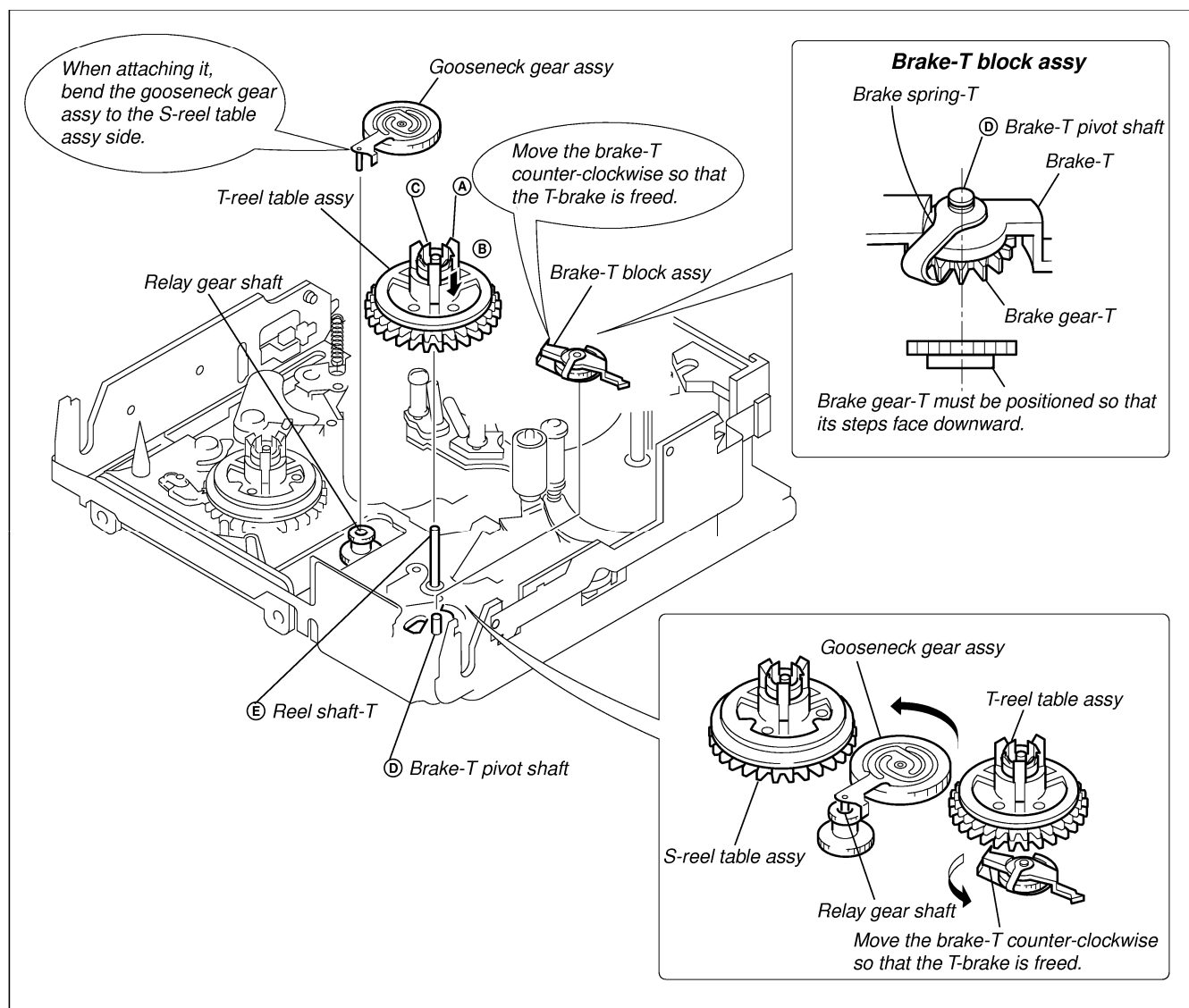


Fig. 3-4

3-5. TG1 Assy, Tension Coil Spring (Tension Regulator)

1. Removal procedure

- 1) Remove the screw (M1.4 × 2.5) ①.
- 2) Remove the tension coil spring.
- 3) Remove the TG1 assy tension regulator band.
- 4) Remove the (FWD) adjustment plate from the S-reel table. Place it between the T-reel table assy and pinch arm assy.
- 5) While pressing down the reel claw retainer ④ of the S-reel table assy in the direction of ⑤, remove the reel claw ③.

Note 1: Be careful not to deform the tension regulator band.

Note 2: Be careful that grease does not attach to the tension regulator band.

2. Attachment procedure

- 1) Coat the root and its surroundings on TG1 pivot shaft ① with grease (1/4 drop). (Strictly observe the coating position and specified amount of grease.)
- 2) Attach the S-reel table assy to the reel shaft-S.
- 3) Attach the TG1 assy to the TG1 pivot shaft ①. Note that the TG1 drive shaft has entered the groove of the LS block assy at this moment.
- 4) Wrap the tension regulator band around the S-reel table assy. Fix it with the screw (M1.4 × 2.5) ① while ensuring that direction of the (FWD) adjustment plate is correct as shown.
- 5) Hook the tension coil spring ② on the TG1 assy and on the LS chassis block assy.
- 6) Clean the tip of the TG1 pivot shaft with a super-fine applicator (Ref. J-3) moistened with cleaning fluid.
- 7) Perform the (FWD) position adjustment referring to section 3-6.
- 8) Perform the FWD back-tension adjustment referring to section 3-7.
- 9) Perform the reel torque check referring to section 3-8.

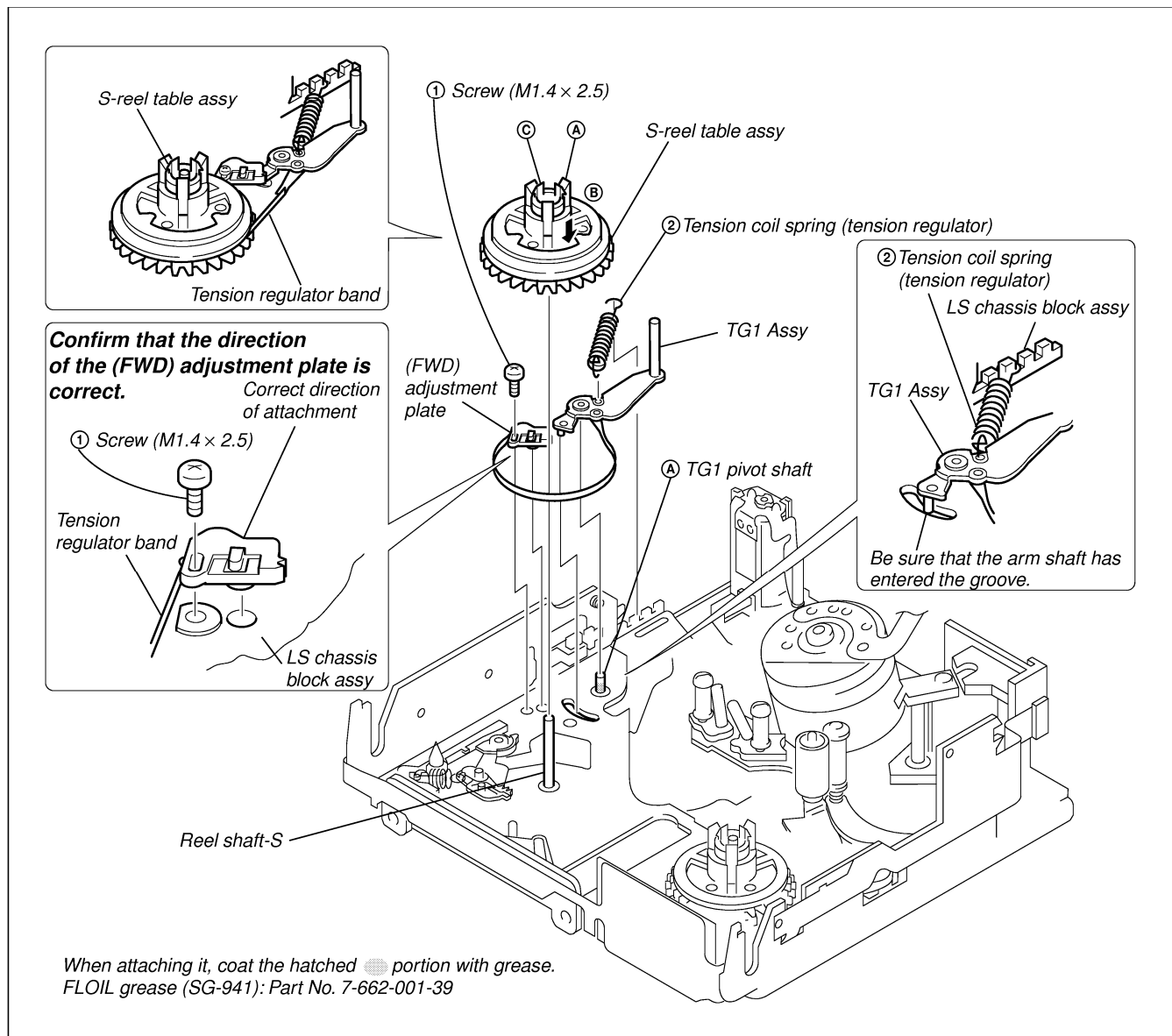


Fig. 3-5

3-6. TG1 FWD Position Adjustment

When the TG1 assy or S-reel table is replaced, or when a part constituting these parts is replaced, perform the following adjustment.

- TG1 FWD Position Adjustment
- FWD Back-tension Adjustment (Refer to section 3-7.)
- Reel table (RVS) torque check (Refer to section 3-8.)

1. Adjustment procedure

- 1) Establish the [RP] mode.
- 2) Install the TG1 adjustment jig (Ref. No. J-7) as specified by the S/T position setting.
Note: Be careful not to damage the flexible wiring board.
- 3) Attach the torque screwdriver (Ref. No. J-11) and the TG1 FWD adjustment screwdriver (Ref. No. J-8) to the adjustment screw block.
- 4) While rotating the adjustment screwdriver a little, press it down lightly so that it is aligned with the gear of the (FWD) adjustment plate.
- 5) Loosen the adjustment screw that is tentatively tightened by the torque screwdriver. Perform adjustment so that TG1 comes to the center of the gauge's groove when viewed from directly above the TG1 adjustment jig (Ref. No. J-7). Then tighten the adjustment screw.
Tightening torque: 0.0588 N•m (0.6 kg•cm).
- 6) Check again that the TG1 position remains in the correct position, then remove the jig.

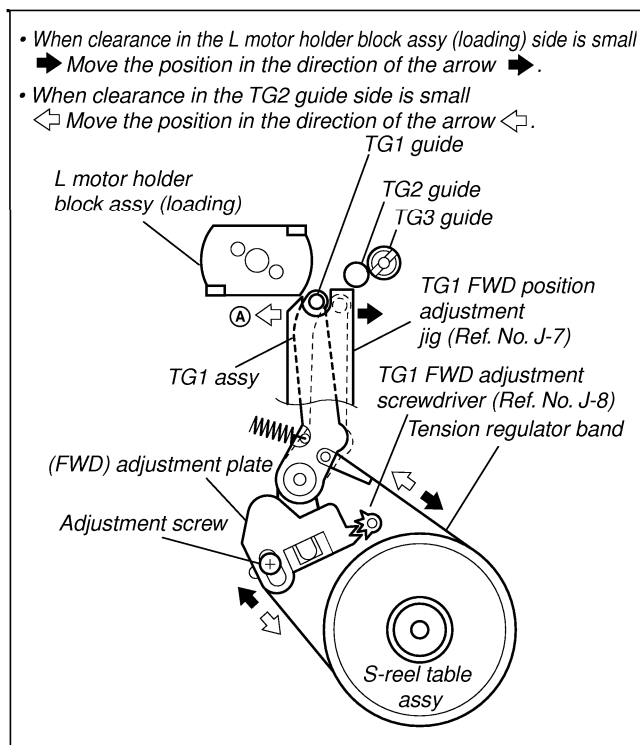


Fig. 3-6

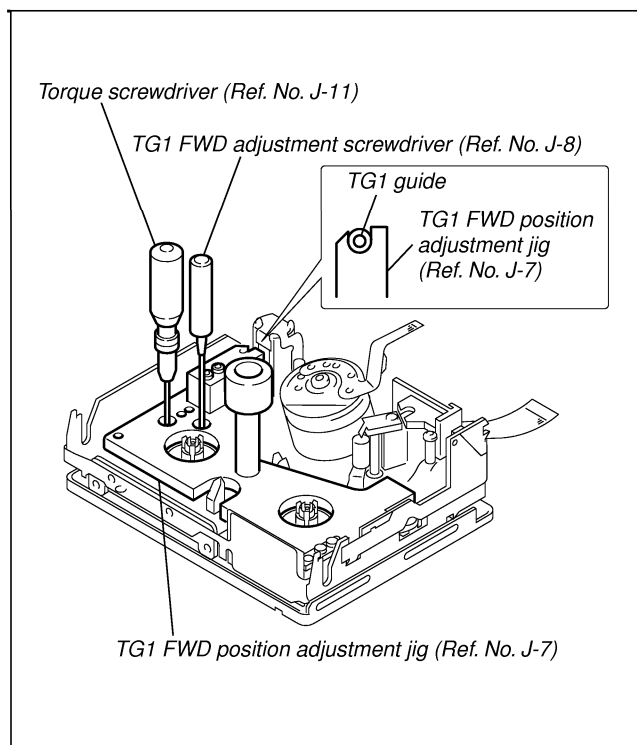


Fig. 3-7

3-7. FWD Back-tension Adjustment

1. Adjustment procedure

- 1) Install the Mini DV torque cassette (Ref. No. J-6).
 - 2) Set the **[RP]** mode. Confirm that the torque reading of the supply side is in the range of 0.45 to 0.55 mN•m (4.5 to 5.6 g•cm) including fluctuation. If the torque reading is outside the specified range, perform the following adjustment.
- If the torque reading value is higher than the specification: (Reduce the spring tension as follows.)
Shift the hook position of the tension coil spring in the direction of **(A)**.
 - If the torque reading value is lower than the specification: (Increase the spring tension as follows.)
Shift the hook position of the tension coil spring in the direction of **(B)**.

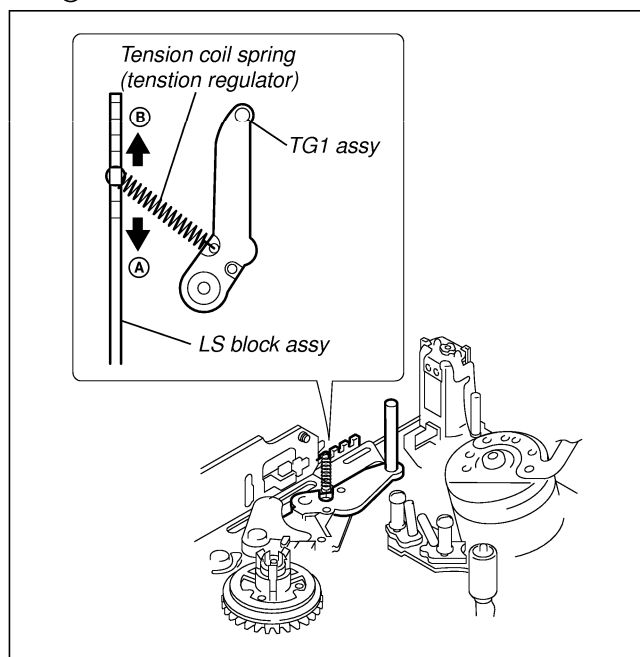


Fig. 3-8

3-8. Reel Torque Check

1. Check procedure

[FWD torque]

- 1) Install the Mini DV torque cassette (Ref. No. J-6).
- 2) Set the FWD mode. Confirm that the center of the T-reel table torque reading value is 0.54 to 1.32 (mN•m) (5.5 to 13.5 g•cm) and the fluctuation value is 0.39 to 0.40 (mN•m) (3.9 to 4.0 g•cm).

[RVS torque]

- 1) Install the Mini DV torque cassette (Ref. No. J-6).
- 2) Set the RVS mode (by using the EDIT SEARCH (–) button of the machine). Confirm that the center of the S-reel table torque reading value is 1.37 to 2.11 (mN•m) (14 to 21.5 g•cm) and the fluctuation value is 0.39 to 0.40 (mN•m) (3.9 to 4.0 g•cm).

If either of the above specifications is not satisfied, check whether the tension regulator band has any abnormality. If it has no abnormality, replace the corresponding reel table.

3-9. TG3 Guide Zenith Adjustment

- 1) Remove the drum referring to section 3-1. Install the dummy drum (Ref. No. J-9).
- 2) Install the TG36 gauge (Ref. No. J-10) on top of the dummy drum. Rotate the slant adjustment zenith screw until the TG3 guide and TG36 gauge (Ref. No. J-10) become parallel.
- 3) Remove all the jigs. Attach the original drum back in its original position referring to section 3-1.
- 4) Clean the TG3 and TG4 guides referring to section 2-2.
- 5) Perform the tape path adjustment. (Refer to section 4, “Tape Path Adjustment”.)

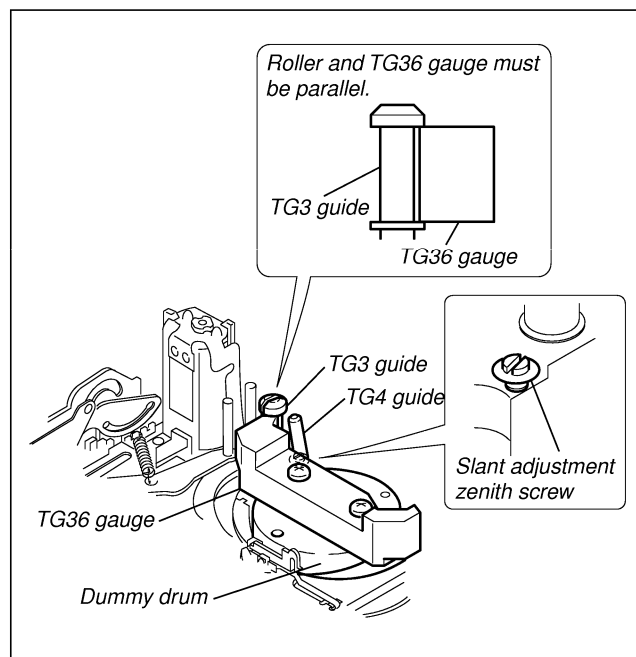


Fig. 3-9

3-10. TG6 Guide Zenith Adjustment

1. Adjustment procedure

- 1) Remove the drum referring to section 3-1. Install the dummy drum (Ref. No. J-9).
- 2) Install the TG36 gauge (Ref. No. J-10) on top of the dummy drum. Adjust the slant of the TG6 guide.
- 3) Rotate the slant adjustment zenith screw until the TG6 guide and TG36 gauge (Ref. No. J-10) become parallel.
- 4) Remove all the jigs. Attach the original drum back in its original position referring to section 3-1.
- 5) Clean the TG5 and TG6 guides referring to section 2-2.
- 6) Perform tape path adjustment. (Refer to section 4, "Tape Path Adjustment".)

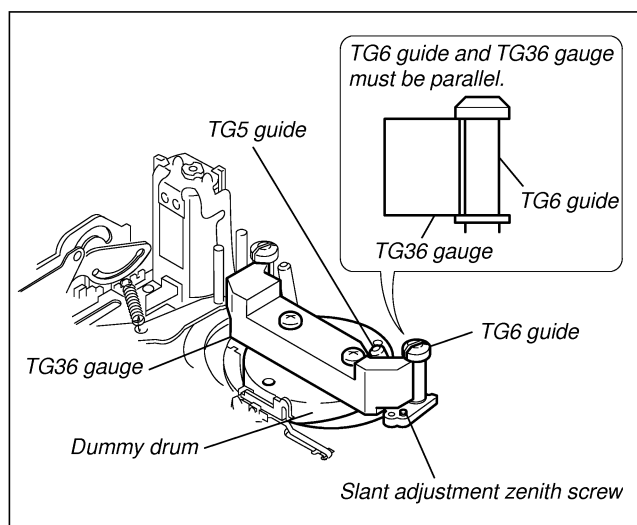


Fig. 3-10

3-11. LS Cam Plate Position Adjustment

1. Adjustment procedure

- 1) Loosen the LS cam fixing screw (M1.4 × 4) ① by 180 degrees.
- 2) Establish the **STOP** mode.
- 3) While pressing down the center of the LS chassis block assy with force of 100 to 200 gf (0.98 to 1.96 N), move the LS cam plate toward the S-reel side and tighten the LS cam plate fixing screw (M1.4 × 4) ① with force of 500 to 1000 gf (4.9 to 9.8 N).

Tightening torque: 0.059 to 0.01 N•m (0.6 kg•cm).

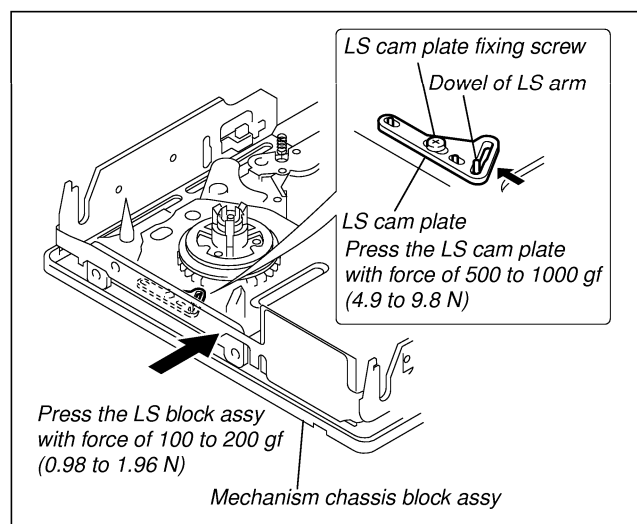


Fig. 3-11

3-12. LS Chassis Block Assy, LS Guide Retainer

1. Removal procedure

- 1) Remove the FP-100 flexible wiring board from the FPC connector on the FP-102 flexible wiring board.
- 2) Remove the screw (M1.4 × 2.5) ②. Remove the FPC holder from DC motor (capstan).
- 3) Remove the two screws (M1.4 × 2) ①.
- 4) Remove the LS retainer in the direction of the arrow ④ on the top.
- 5) Remove the E-type stop ring 1.5 ③.
- 6) Remove the LS chassis block assy in the direction of the arrow ⑤.

2. Attachment procedure

- 1) Confirm that the brake-T block assy has been moved in the counter-clockwise direction ⑥. While pressing the TG7 block in the direction of the arrow ⑦, insert the LS guide shafts T1 and T2 of the LS chassis block assy into the slots of the mechanism chassis with slanted angle.
- 2) While inserting the LS arm dowel into the LS cam plate groove, insert the LS guide shafts S1 and S2 into the slots of the LS chassis block assy as shown.
- 3) Insert the LS guide retainer from the top, align it with the LS guide shafts S1 and S2 and fix it with the screw (M1.4 × 2) ①. Tightening torque: 0.059 to 0.01 N•m (0.6 kg•cm).
- 4) Confirm that the LS guide retainer has play, is not lifted up, is not installed in opposite direction and has not been deformed.
- 5) Attach the E-type stop ring 1.5 ③ into the LS guide shaft T1.
- 6) Insert the FPC holder into DC motor (capstan) in the direction of the arrow ⑧ and fix it with the screw (M1.4 × 2.5) ②.
- 7) Connect the flexible wiring board coming from the FP-100 flexible wiring board into the FPC connector.

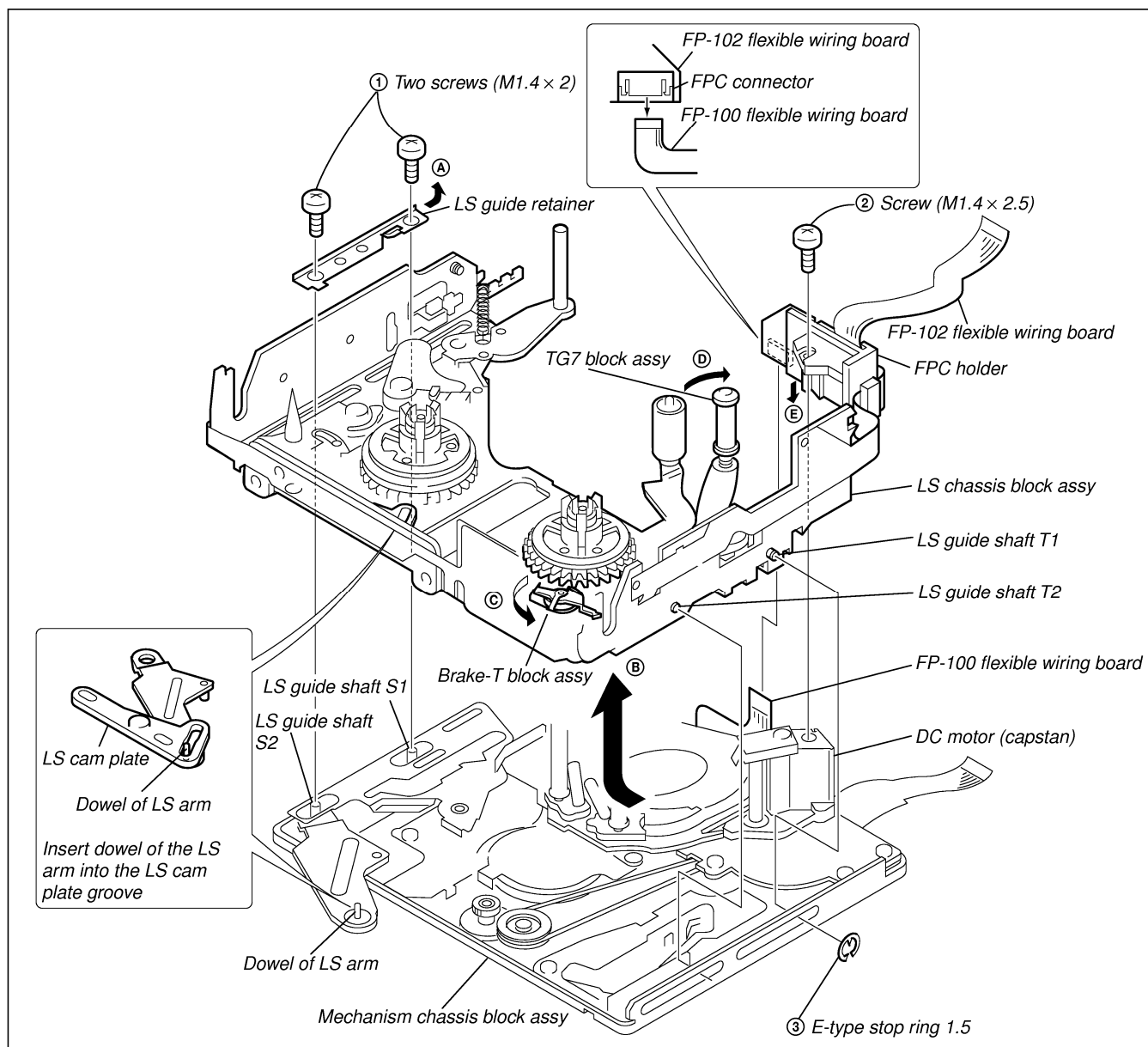


Fig. 3-12

3-13. LS Cam Plate, Tension Coil Spring (Brake-S), Brake-S, Torsion Coil Spring (Brake Arm), Cassette Position Set-S, Brake-S Driving Arm Assy

1. Removal procedure

- 1) Remove the screw (M1.4 × 1.4) ①.
- 2) Remove the LS cam plate.
- 3) Remove the tension coil spring (brake-S).
- 4) Remove the brake-S.
- 5) Remove the screw (M1.4 × 2) ②.
- 6) Remove the torsion coil spring (brake arm).
- 7) Remove the cassette position set-S from groove of the LS block assy in the direction of the arrow ③.
- 8) Remove the brake-S drive arm assy from groove of the LS block assy in the direction of the arrow ④.

2. Attachment procedure

- 1) Insert the brake-S drive arm assy under groove of the LS chassis block assy. Attach the brake-S drive arm assy to the brake-S arm shaft and to the brake-S pivot shaft.
- 2) Insert the cassette position set-S under the groove of the LS chassis block assy. Attach the cassette position set-S to the brake-S arm shaft.
- 3) Attach the torsion coil spring (brake arm).
- 4) Attach the screw (M1.4 × 2) ② to the brake-S arm shaft.
- 5) Attach the brake-S to the brake-S arm bearing and to the brake-S pivot shaft.
- 6) Hook the tension coil spring (brake-S) to the spring stay of the cassette position set-S and the spring stay of the brake-S.
- 7) Align the slot of the LS cam plate with the dowel. Move then in the direction toward the arrow ⑤ and attach the screw (M1.4 × 1.4) ①.
- 8) Perform the LS cam plate position adjustment referring to section 3-11.

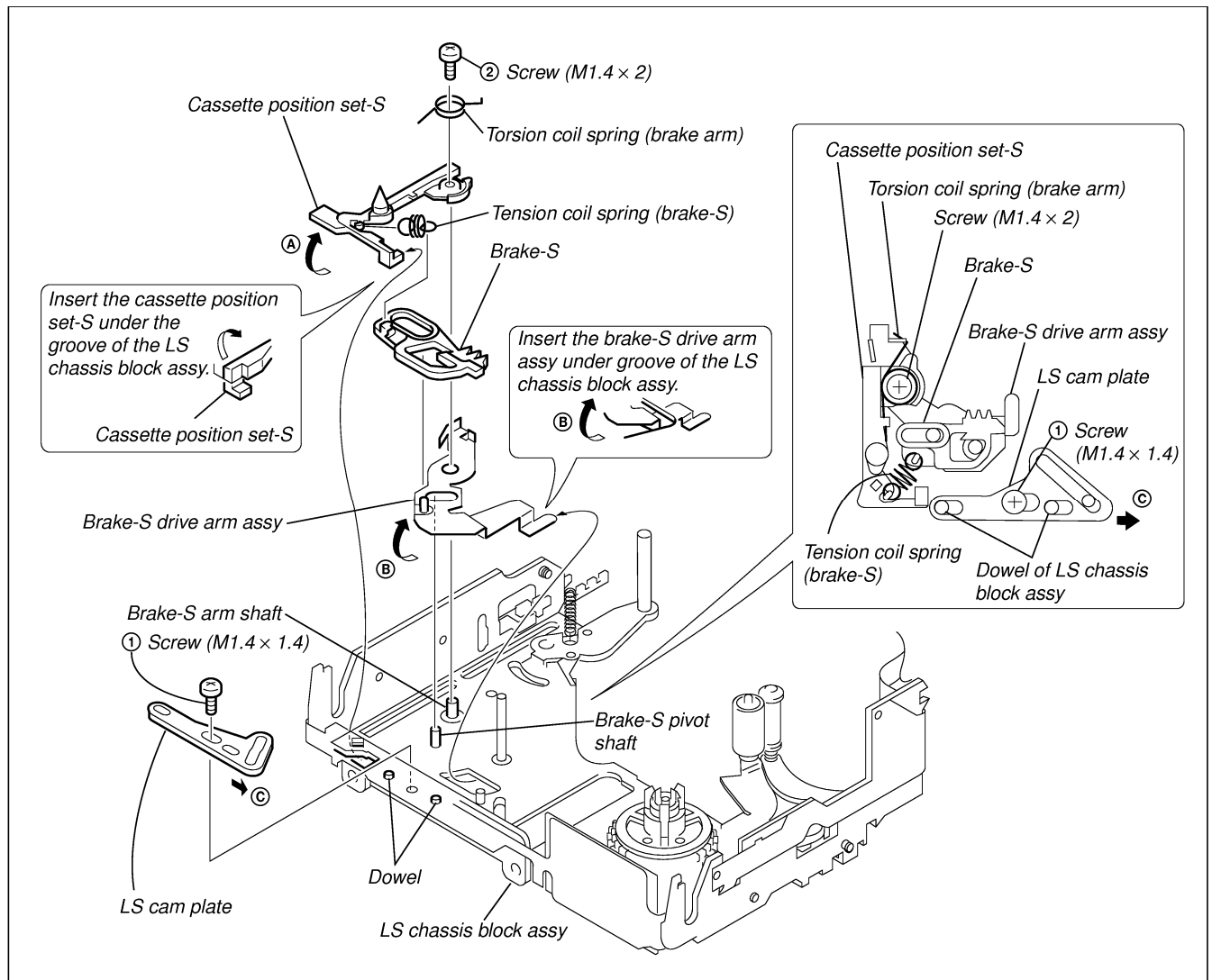


Fig. 3-13

3-14. TG7 Block Assy, Torsion Coil Spring (TG7 Return, Pinch Return), Pinch Arm Assy

1. Removal procedure

- 1) Remove the TG7 block assy in the direction of the arrow ①.
- 2) Remove the torsion coil spring (TG7 return) ①.
- 3) Remove the pinch arm assy in the direction of the arrow ②.
- 4) Remove the torsion coil spring (pinch roller return) ②.

2. Attachment procedure

- 1) Install the torsion coil spring (pinch roller return) ①. (Insert the 90-degree-bent portion of the torsion spring into the square hole of the LS chassis block assy.)
- 2) Attach the pinch arm assy to the pinch arm bearing.
- 3) Attach the torsion coil spring (TG7 return) ①.
- 4) While aligning the TG7 block assy with the groove of the LS chassis block assy, install the TG7 block assy into the TG7 block assy bearing.

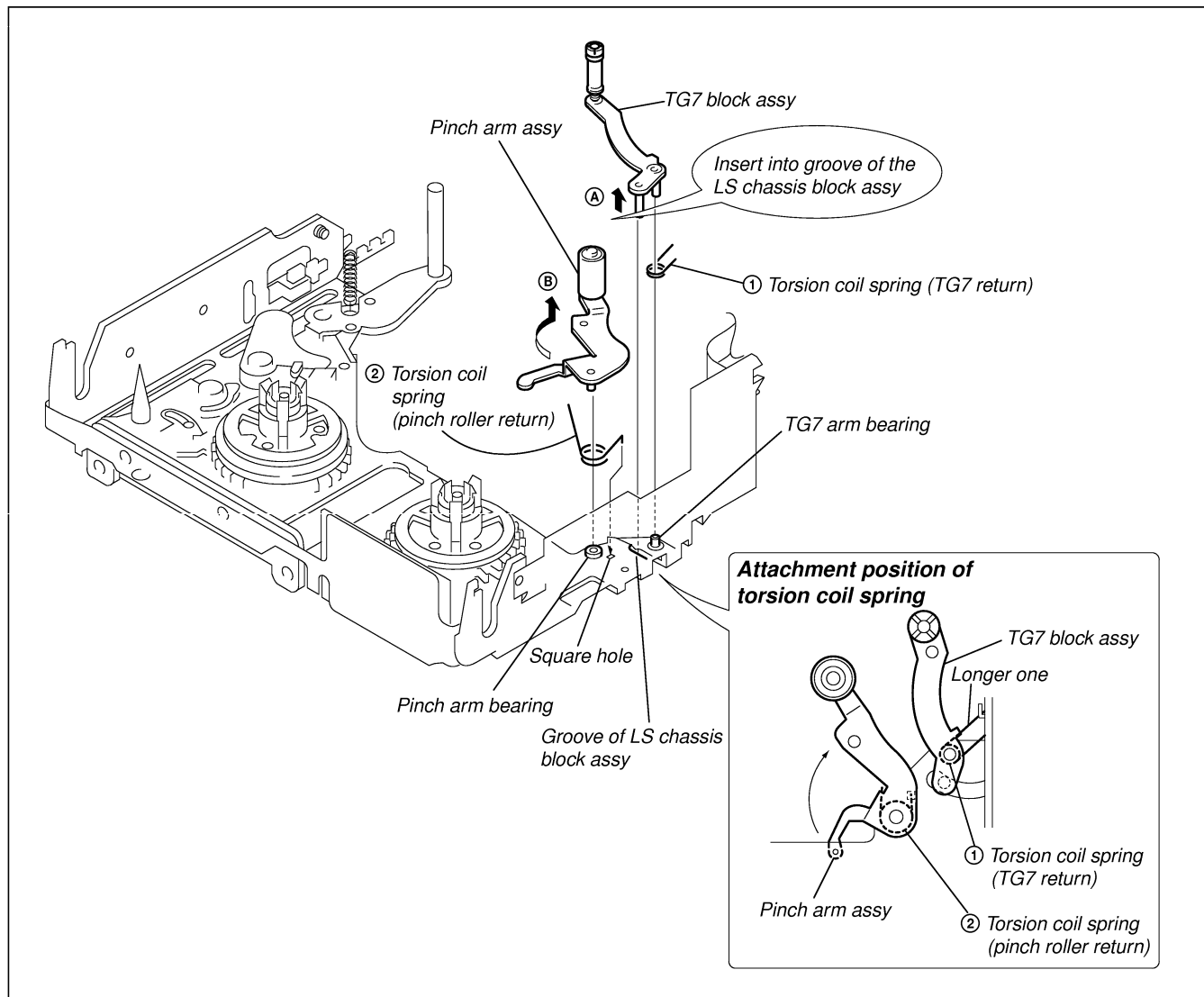


Fig. 3-14

3-15. Layout Diagram of FP-102 Flexible Wiring Board

1. Removal procedure

- 1) Remove the sensor holder-T from groove of the LS chassis block assy in the direction of the arrow (A).
- 2) Remove the cassette holder-S by pushing out the hook under the LS chassis block assy towards the direction of the arrow (B).

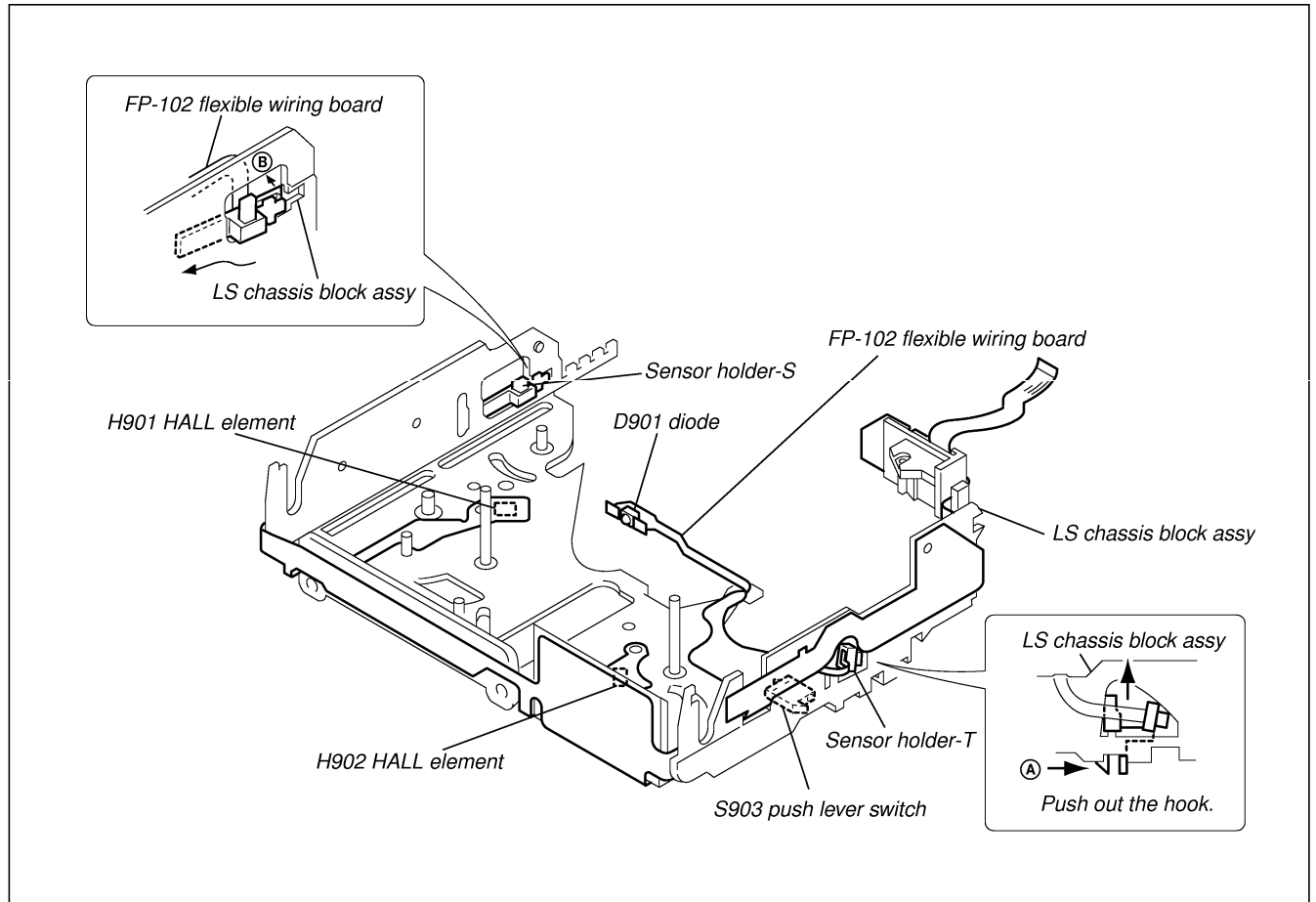


Fig. 3-15

3-16.TG1 Cam Slider, LS Arm, LS Roller, Mode Gear Assy, LS Guide Roller

1. Removal procedure

- 1) Remove the TG1 cam slider.
- 2) Remove the LS arm. (At this moment, be careful that the LS roller can come out of cam gear A groove.)
- 3) Remove the LS roller from the LS arm.
- 4) Remove the LS guide roller.

2. Attachment procedure

- 1) Coat inside the LS guide roller with grease (1/4 drop of grease) and insert it into the LS guide shafts S1 and S2.
- 2) Coat outside the LS guide roller with grease (1/2 drop of grease) at the two points as shown.
- 3) While aligning dowel of the TG1 drive arm with groove of the mode gear assy, insert the TG1 drive arm into the LS guide shaft S1.
- 4) Coat the portion ① of the LS arm with grease (1/4 drop of grease) and insert the LS guide roller.
- 5) Coat both sides of the groove of the cam gear A with grease (1/2 drop of grease). Insert the LS guide roller into groove of the cam gear A and insert the LS arm into the LS guide shaft S2.
- 6) Insert the TG1 cam slider into the three positions of the LS guide shaft S1, S2 and slider guide shaft. Insert dowel of the TG1 cam slider into groove of the cam gear A.
- 7) Be careful that greasing points are correct, amount of grease is correct and the LS arm and the TG1 drive arm are not floating.

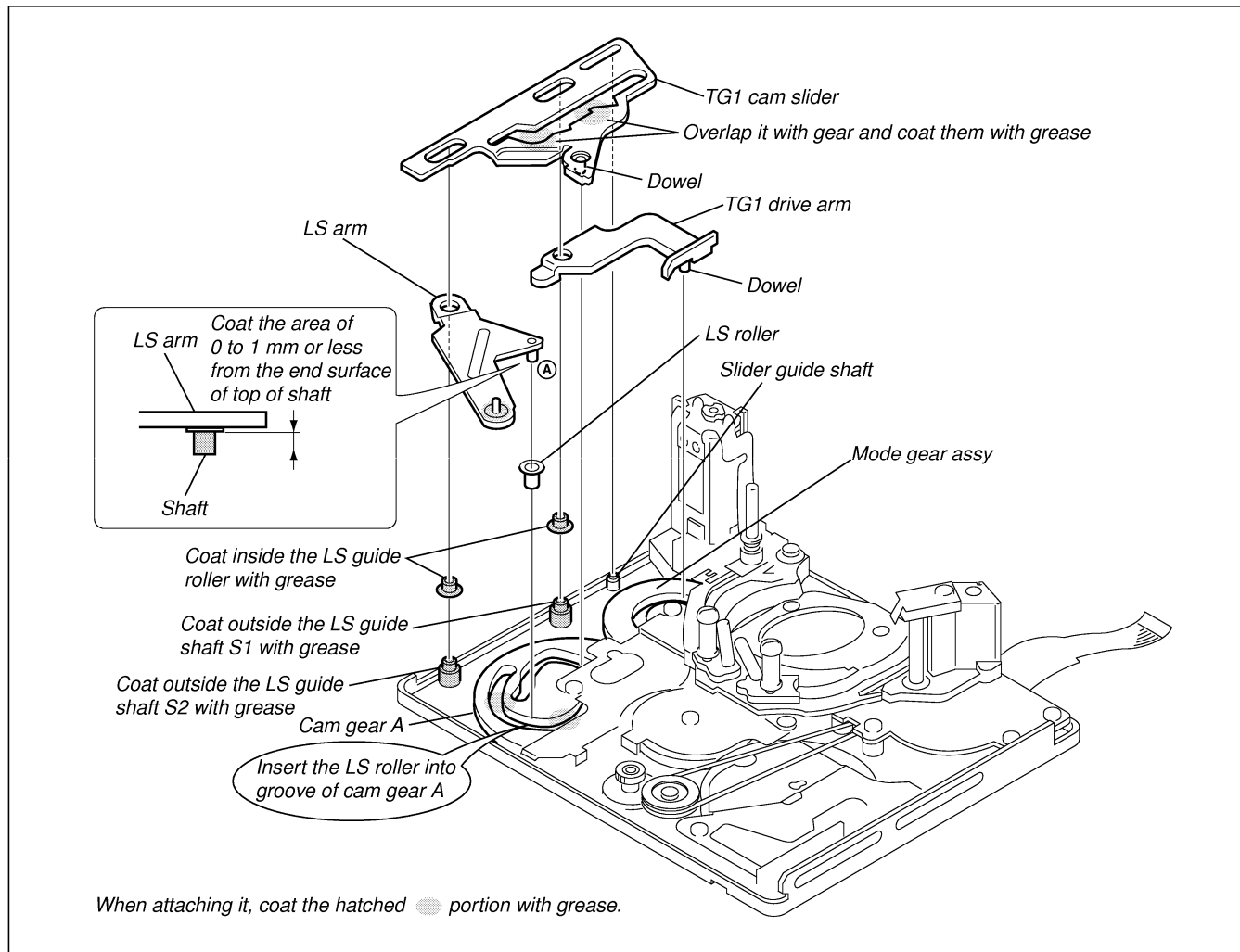


Fig. 3-16

3-17. Guide Rail

1. Removal procedure

- 1) Remove the screw (M1.4 × 2) ①.
- 2) When removing the guide rail, be careful that claws of the drum base block assy are fully released. Remove the S-side rail, T-side rail and rail of DC motor side in this order.

2. Attachment procedure

- 1) Engage the claws of the guide rails with the claws of the drum base block assy starting engaging the claw from the T-side rail and S-side rail.

Note: There must no deformation of guide rail, claws must not be broken, claws must not override, claws must not become white, not be stained or have no play.

- 2) Fix the guide rail with the screw (M1.4 × 2) ①.
Tightening torque: $0.059 \pm 0.01 \text{ N}\cdot\text{m}$ (0.6 kg•cm)

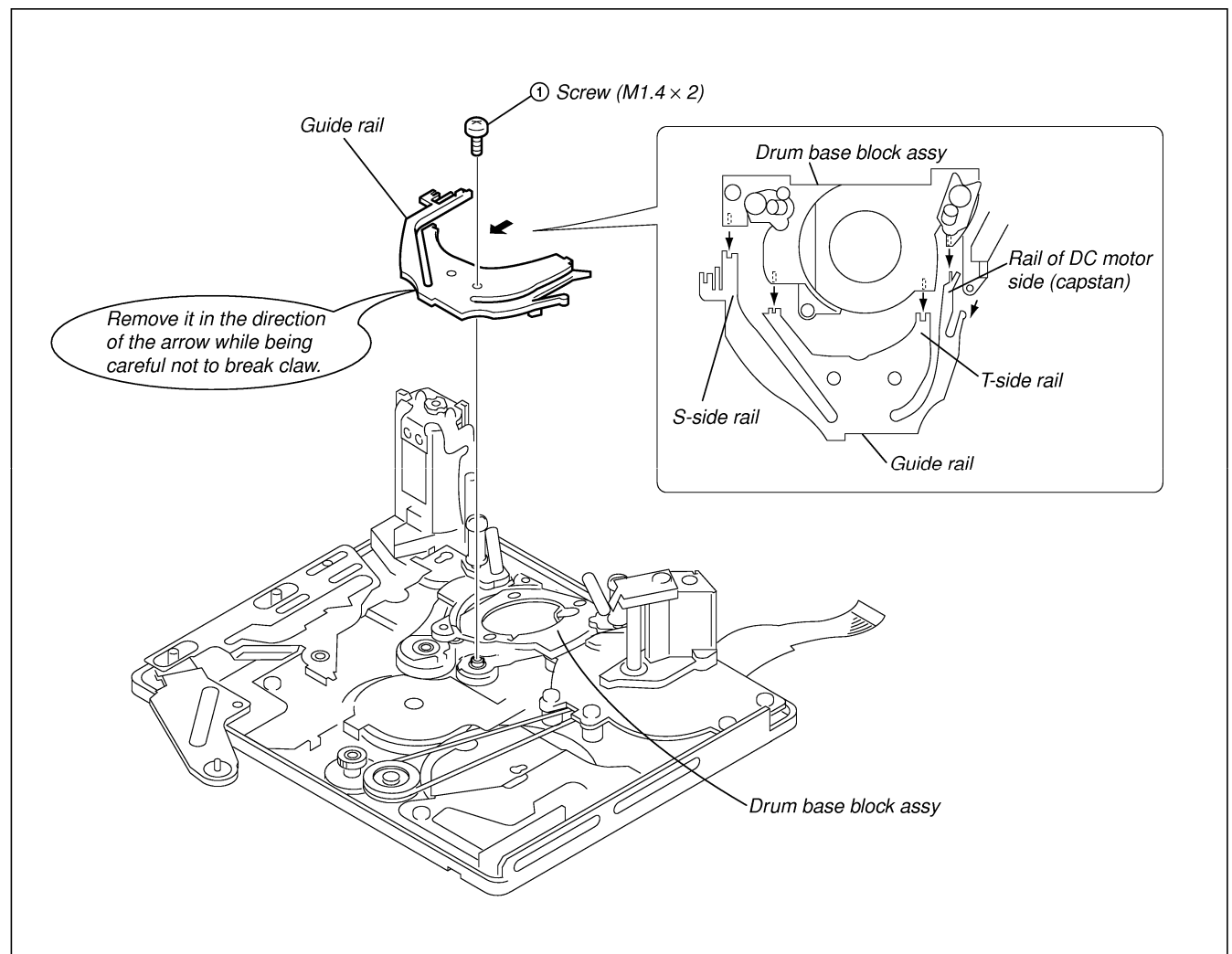


Fig. 3-17

3-18. Gear Cover B, GL Driving Gear

1. Removal procedure

- 1) Remove the screw (M1.4 × 2) ①.
- 2) Remove the gear cover B in the direction of the arrow ②.
- 3) Remove the GL drive gear.

2. Attachment procedure

- 1) Coat the cam gear A and the GL drive gear with grease (1/2 drop). (Refer to Fig. 2.)
- 2) Refer to Fig. 1. While adjusting phase of the GL drive gear as shown, insert the GL drive gear into the GL drive shaft. (Insert it while moving the GL drive gear in the clockwise direction.)
- 3) Insert the two claws of the gear cover B into the square holes of mechanism chassis.
- 4) Fix the GL drive shaft with the screw (M1.4 × 2) ①. Be sure that the gear cover B must not have any play.
Tightening torque: $0.059 \pm 0.01 \text{ N}\cdot\text{m}$ (0.6 kg•cm)

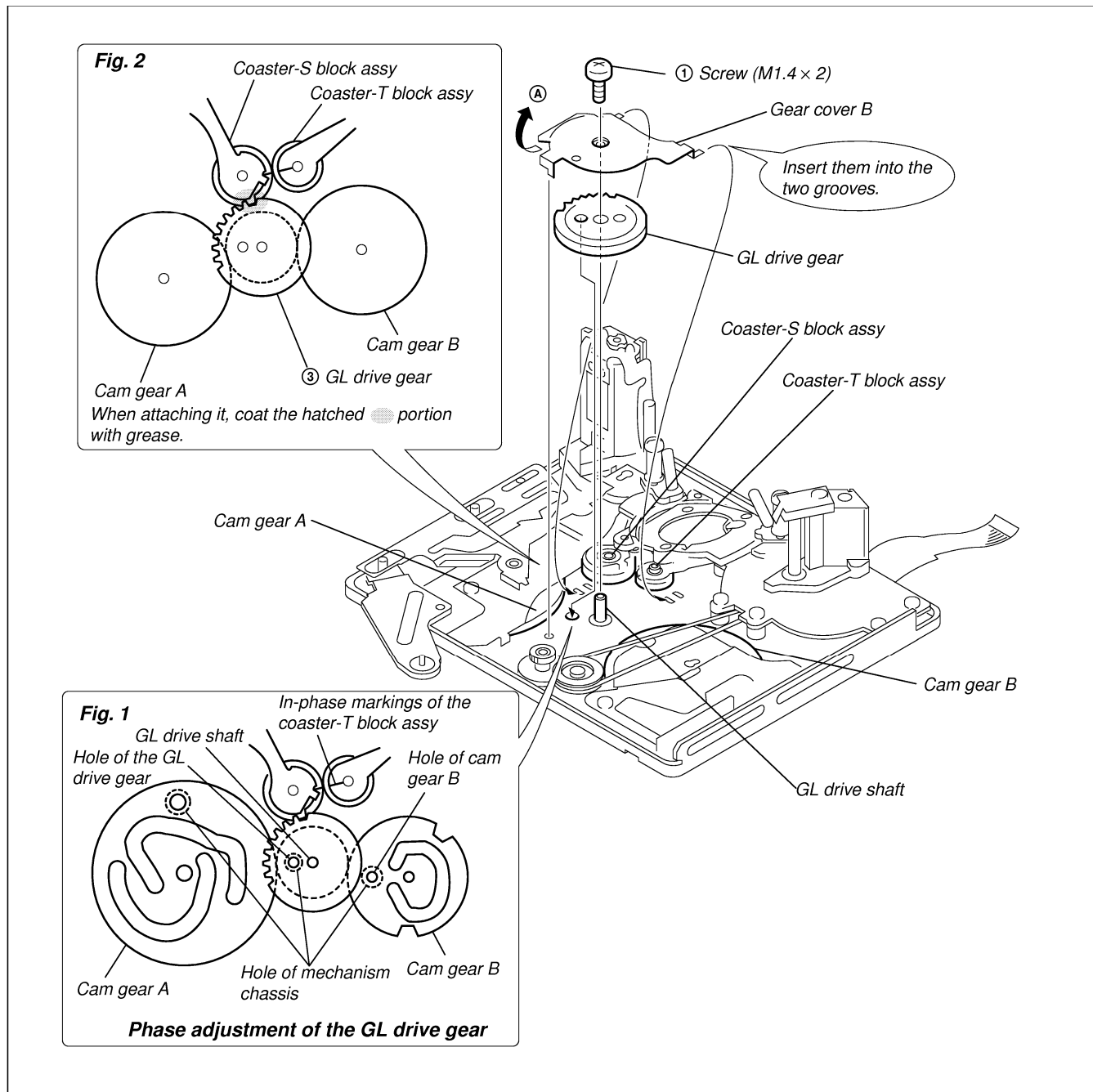


Fig. 3-18

3-19. Drum Base Block Assy, Coaster-S Block Assy, Coaster-T Block Assy

1. Removal procedure

- 1) Remove three screws (M1.4 × 2.5).
- 2) Move the coaster-S block assy and coaster-T block assy out from the drum base groove in the direction of the arrow **A**.
- 3) Remove the drum base block assy.
- 4) Remove the coaster-S block assy from the GL gear shaft-S.
- 5) Remove the coaster-T block assy from the GL gear shaft-T.

2. Attachment procedure

- 1) Insert a coaster-S block assy and coaster-T block assy into the drum base groove.
- 2) Place a drum base block assy on top of the mechanism chassis assy. Insert a coaster-T block assy into the GL gear shaft-T.
- 3) Insert a coaster-S block assy in the oblique direction. While adjusting phase so that the spring of coaster-S block assy agrees with the GL gear lever marking of the coaster-T block assy, insert a coaster-S block assy into the GL gear shaft-S.

Note:

- There must be no phase difference.
- Do not remove coaster-S block assy and coaster-T block assy from the drum base block assy.

- 4) Determine the exact position of the drum base block assy that has been tentatively placed, on the mechanism chassis assy. Tighten the screws at **A**, **B** and **C** in this order. Tightening torque: $0.059 \pm 0.01 \text{ N}\cdot\text{m}$ ($0.6 \text{ kg}\cdot\text{cm}$)

Note: Be careful that the position setting boss of drum base block assy does not override on the mechanism chassis.

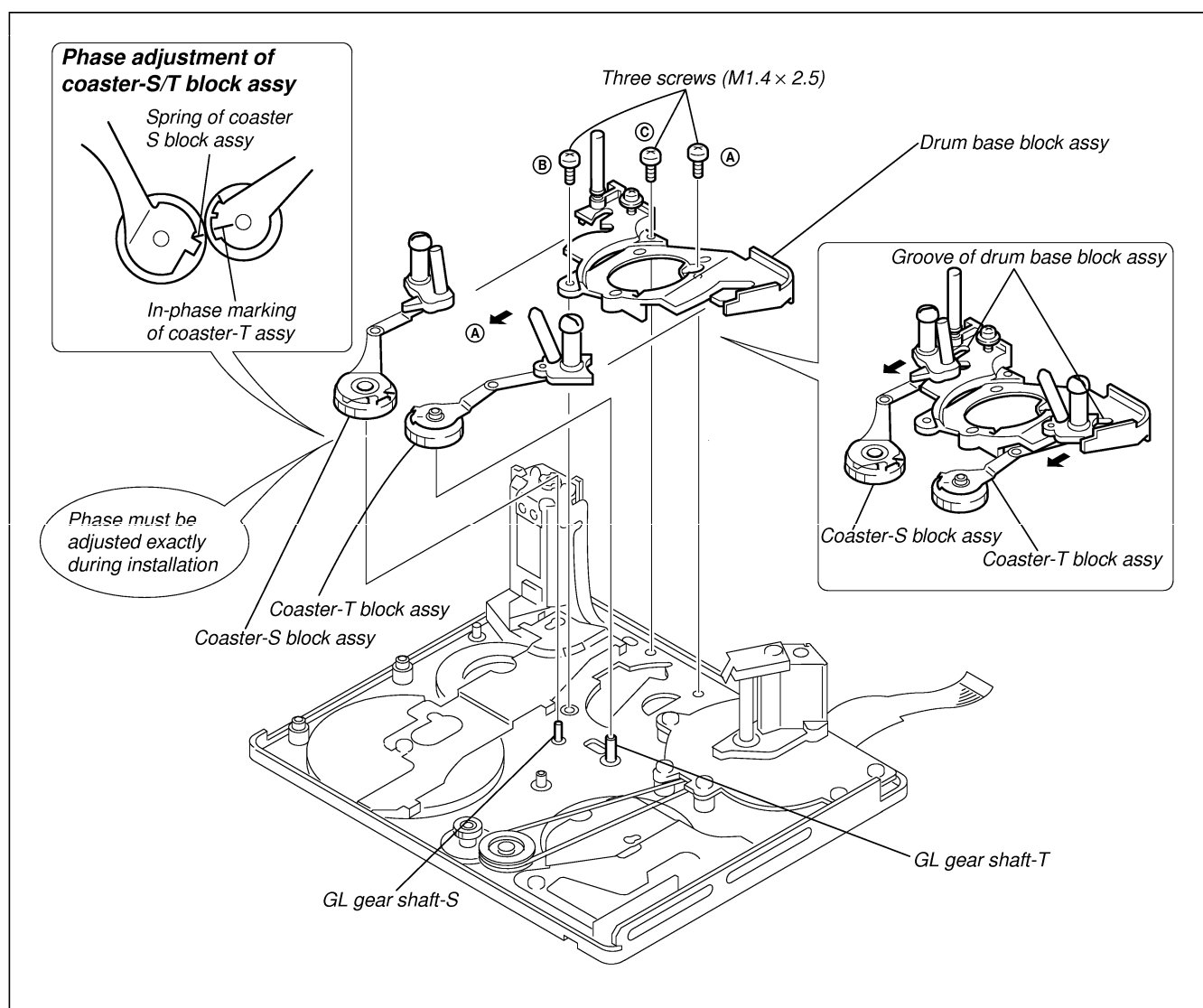


Fig. 3-19

3-20. DC Motor (Capstan), Conversion Gear, Relay Gear

1. Removal procedure

- 1) Remove the three screws (M1.4 × 2) ①.
- 2) Remove DC motor (capstan). Remove belt from the pulley of conversion gear.
- 3) Remove conversion gear.
- 4) Remove relay gear.

2. Attachment procedure

- 1) Coat relay gear shaft and conversion gear shaft with grease (1/8 drop). (Amount of grease must be strictly controlled.)
- 2) With the larger gear of the relay gear positioned down, attach the relay gear to the relay gear shaft.
- 3) With the pulley side of the conversion gear positioned up, engage the conversion gear teeth with the relay gear teeth, and install them.
- 4) Before installing the DC motor (capstan (including belt)), check that belt is not twisted. Hook a belt on the pulley block of conversion gear. Align three shafts with corresponding holes. At this moment, confirm that belt does not override on the shaft.
- 5) Install DC motor (capstan) with three screws (M1.4 × 2) ① in the order of (A), (B) and (C).
(A), (B), (C) tightening torque
(A) tightening torque: $0.059 \pm 0.01 \text{ N}\cdot\text{m}$ (0.6 kg \cdot cm)
(B) and (C) tightening torque: $0.038 \pm 0.01 \text{ N}\cdot\text{m}$ (0.4 kg \cdot cm)

Note: Be careful that gears and belts are not damaged or dust is not attached.
Be careful also not to splash grease.

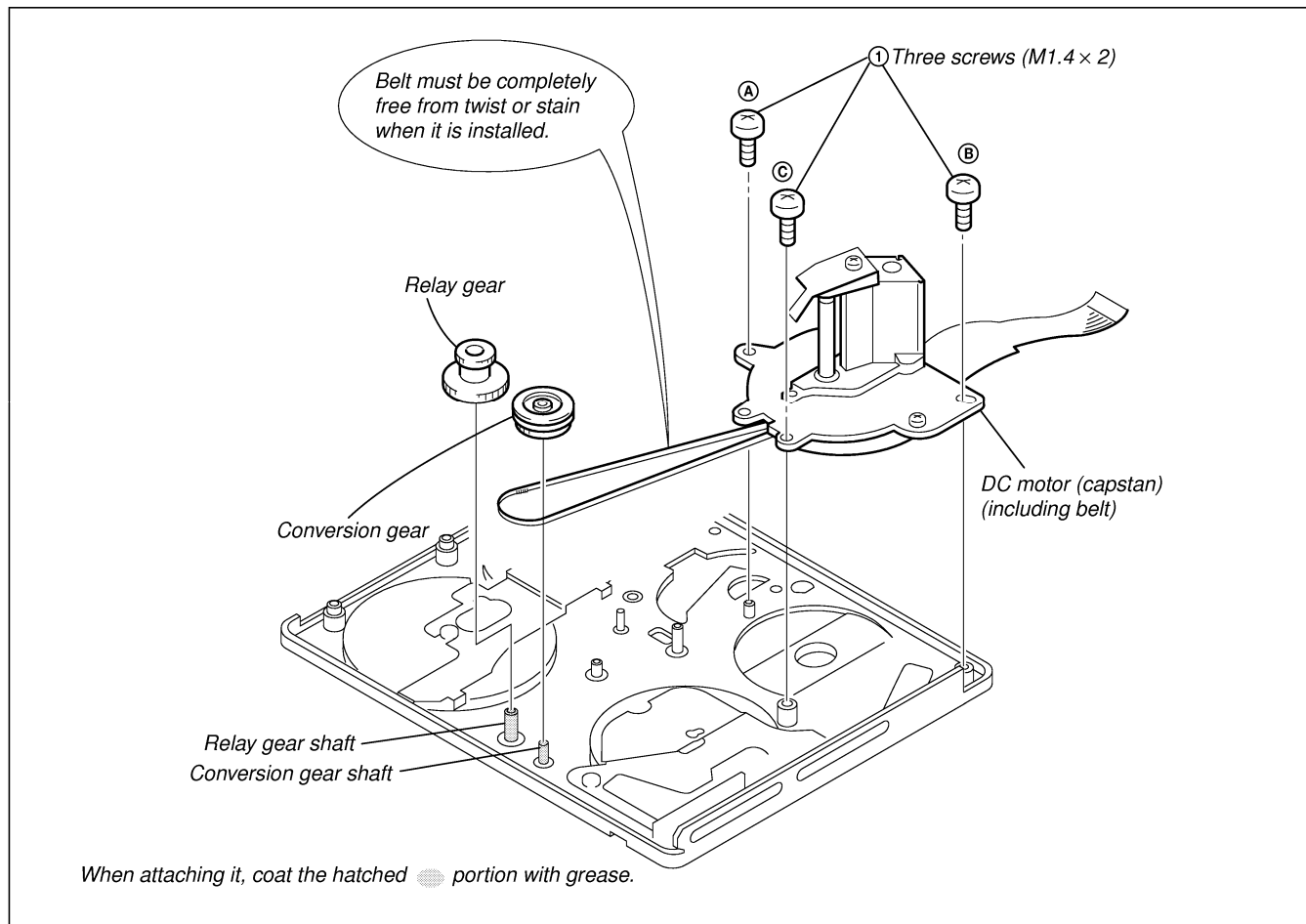


Fig. 3-20

3-21. Gear Cover C, Pinch Driving Arm Assy, Cam Gear B

1. Removal procedure

- 1) Remove the screw (M1.4 × 2) ①.
- 2) Move the key slot of the gear cover C in the direction of the arrow ② and remove the gear cover C.
- 3) Remove the pinch drive arm assy.
- 4) Remove the cam gear B.

2. Attachment procedure

- 1) Identify the front side and the rear side of a cam gear B. Align the cam gear B shaft, the gear phasing hole and the LS chassis hole. Then attach the cam gear B. coat groove of a cam gear with grease (1/2 drop).
 - 2) Align the pinch drive arm assy with the pinch drive pivot shaft. While aligning dowel with the cam groove of the cam gear B, insert the pinch drive arm assy.
 - 3) Insert the “one-step bent portion” of gear cover C into notch of the chassis, insert the cam gear B shaft into the key hole of the gear cover C.
 - 4) Insert the gear cover C into the pinch drive pivot shaft and fix it with the screw (M1.4 × 2) ①. After tightening the screw (M1.4 × 2) ①, move the gear cover C in order to confirm that there is a little play.
- Tightening torque: $0.059 \pm 0.01 \text{ N}\cdot\text{m}$ (0.6 kg•cm)

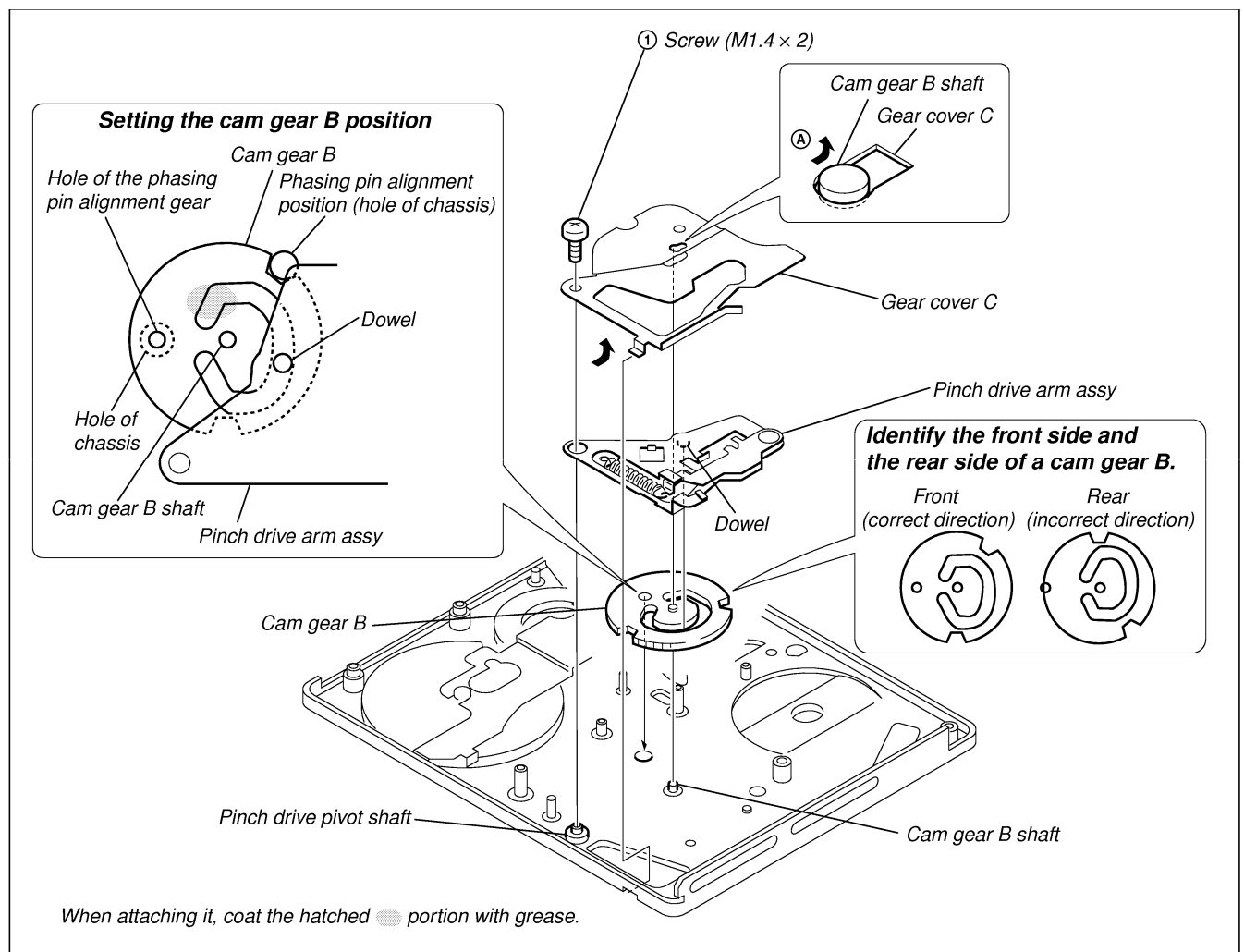


Fig. 3-21

3-22. Gear Cover A, FP-100 Flexible Wiring Board

1. Removal procedure

- 1) Remove the screw (M1.4 × 2) ①.
- 2) Remove the gear cover A in the direction of the arrow ①.
- 3) Remove the screw (M1.4 × 2.5) ②.
- 4) Remove soldering from the motor terminal and FP-228 flexible wiring board (DEW sensor) that are used to connect the FP-100 flexible wiring board with the motor holder block assy.
- 5) Remove the motor holder block assy.

2. Attachment procedure

- 1) Align the motor holder block assy position with the chassis square hole and round hole. The press the motor holder block assy with finger.
Note: Coat the worm shaft with grease (1/2 size of a rice gain).
- 2) Fix the motor holder block assy with the screw (M1.4 × 2.5) ②.
Tightening torque: $0.059 \pm 0.01 \text{ N} \cdot \text{m}$ (0.6 kg·cm)
- 3) Install the gear cover A as follows: Hook the shaft with the key slot and align the U-groove with the cam gear A shaft. Confirm at this time that there is a play.
- 4) Attach the gear cover A to the cam gear A shaft and fix them with the screw (M1.4 × 2) ①.
Tightening torque: $0.059 \pm 0.01 \text{ N} \cdot \text{m}$ (0.6 kg·cm)
- 5) Connect the FP-100 flexible wiring board with the motor holder block assy (motor terminal and FP-228 flexible wiring board (DEW sensor)) by soldering.
Note: Do not touch the DEW sensor.

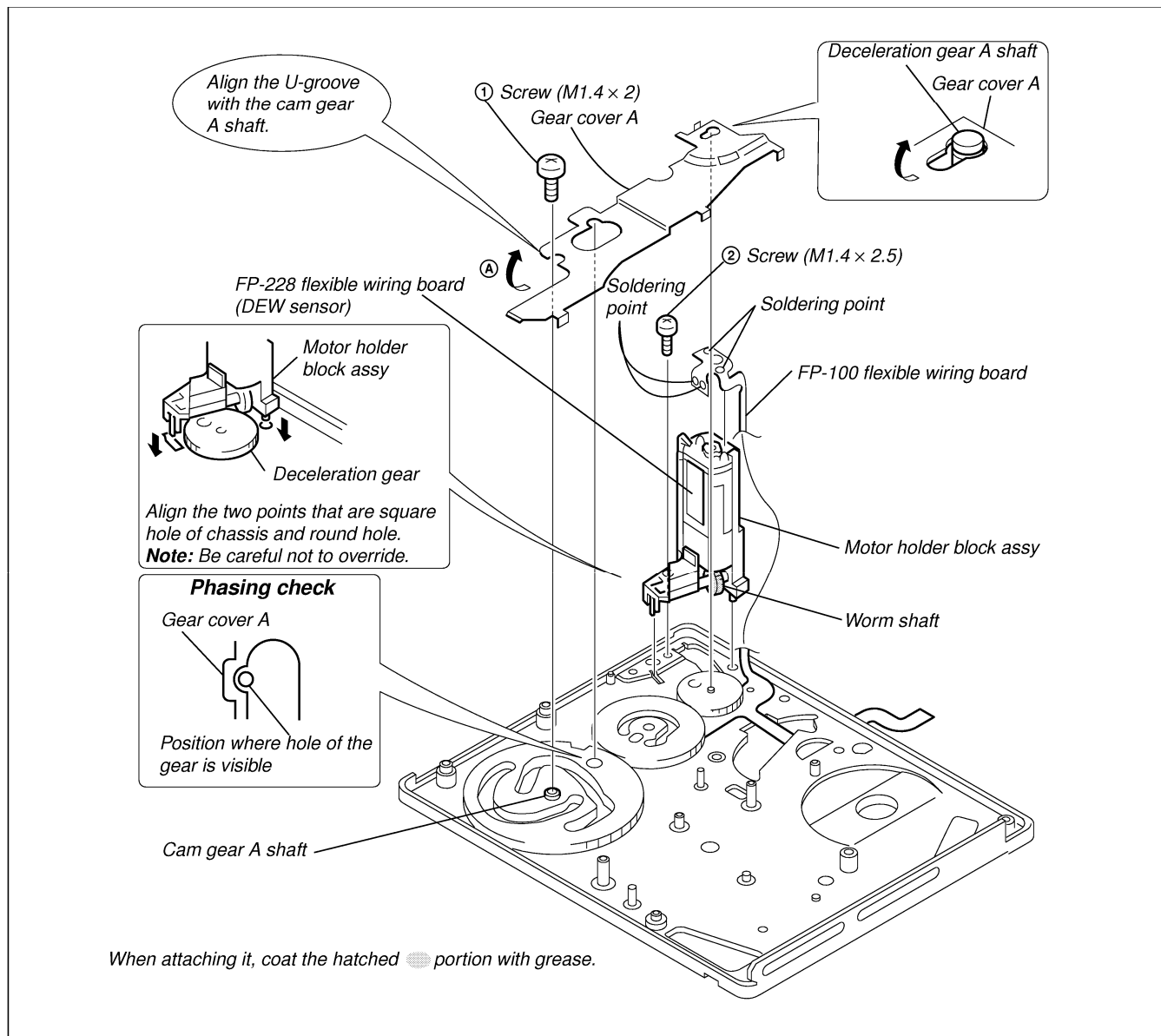


Fig. 3-22

3-23. Deceleration Gear, Mode Gear Assy, FP-100 Flexible Wiring Board, Cam Gear A

1. Removal procedure

- 1) Remove the deceleration gear.
- 2) Remove the screw (M1.4 × 2) ①.
- 3) Remove the cam gear A.
- 4) Remove the mode gear assy.
- 5) Remove the FP-100 flexible wiring board.

Note 1: Do not touch the foil pattern area of the FP-100 flexible wiring board. Any foreign materials must not be adhered.

Note 2: Do not remove the mode gear assy unnecessarily.

2. Attachment procedure

- 1) Install the FP-100 flexible wiring board to the mechanism chassis. Confirm that flexible wiring board is not stained, broken, bent or damaged.
- 2) Coat the entire contact points of the mode pattern area of the FP-100 flexible wiring board with the contact-point grease (equivalent to 1.5 drops). (Any foreign materials must not be mixed in the contact-point grease.)
- 3) Attach the mode gear assy to the mode gear shaft.

- 4) Install the deceleration gear as follows: Position the deceleration gear with its small gear down, and engage the small gear tooth with the mode gear tooth. Rotate the gear tooth until the phasing marking of the mode gear assy arrives at the phasing position of the cam gear A.
- 5) Identify the front and rear sides of the cam gear A. Confirm that the marking of the cam gear A and that of the mode gear assy agree.
- 6) Attach the screw (M1.4 × 2) ① of the mode gear assy. Tightening torque: $0.059 \pm 0.01 \text{ N}\cdot\text{m}$ (0.6 kg•cm)
- 7) Connect the FP-100 flexible wiring board to the motor holder block assy by soldering in accordance with section "3-22 [2. Attachment procedure] step 7.

Note 1: If the FP-100 flexible wiring board is removed, replace it with a new FP-100 board, and do not use the removed FP-100 flexible wiring board.

Note 2: Cautions when attaching the FP-100 flexible wiring board:

- ① It must not override on the mode gear shaft.
- ② It must be aligned with the position setting hole.
- ③ It must no float, must not have stain or must not be broken.
- ④ Never touch the foil pattern area with hand.

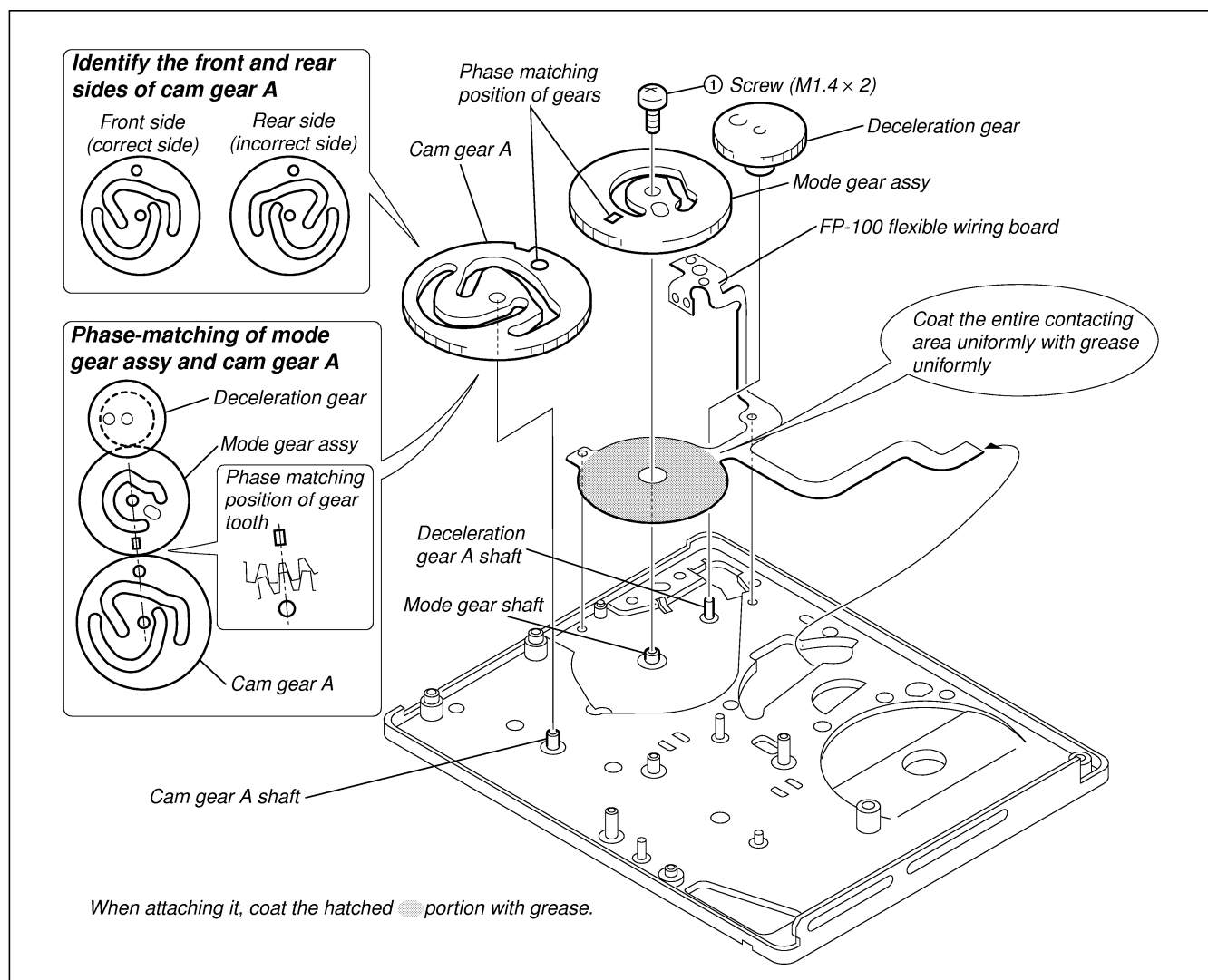


Fig. 3-23

4. Tape Path Adjustment

4-1. Adjustment Preparation

- 1) Clean the tape running surface (tape guides, drum, capstan, pinch roller) referring to Service Manual.
- 2) Connect adjustment remote commander (Ref. No. J-13) to the LANC terminal of the machine. Set the HOLD switch to ON.
- 3) Connect an oscilloscope to the VC-240 board CN009 via the CPC-8 jig (J-082-388-A). (in the case of DCR-TRV20).
Scope channel 1: VC-240 board CN009 pin ⑳ (Note)
External trigger: VC-240 board CN009 pin ⑰
Note: Connect CN009 pin ⑳ and pin ⑲ (GND) with 75 Ω resistor (1-247-804-11).
- 4) Play the tracking alignment tape (XH2-1)(Ref. No. J-5) back.
- 5) Select page: 3, address: 33 and data: 08. (Note)
- 6) Select page: 3, address: 26 and data: 31. (Note)
- 7) Confirm that RF waveform on scope is flat in both entrance side and exit side. (Refer to Fig. 4-2 **A**).
If RF waveform is not flat in entrance side and exit side, perform the adjustment of section 4-2. and later. (Refer to Fig. 4-2 **B** and **C**).
- 8) When the required conditions of step 7) are satisfied and adjustment/check are complete, perform [Required work upon completion of adjustment] as described below.

[Required work upon completion of adjustment]

- 1) Connect adjustment remote commander (Ref. No. J-13) to the LANC terminal of the machine. Set the HOLD switch to ON.
- 2) Select page: 3, address: 26 and data: 00. (Note)
- 3) Select page: 3, address: 33 and data: 00. (Note)

Note: Page and address numbers differ depending on each model. Please refer to Service Manual of respective models. Those of DCR-TRV20 are described above.

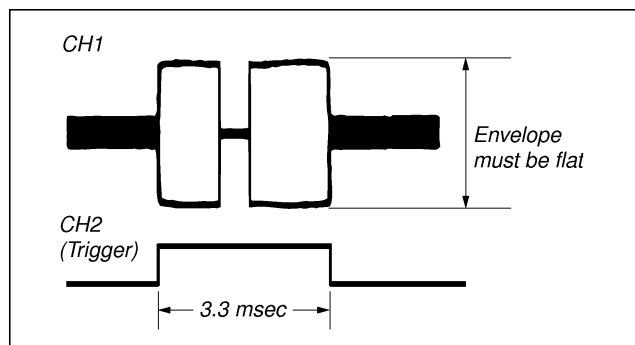


Fig. 4-1

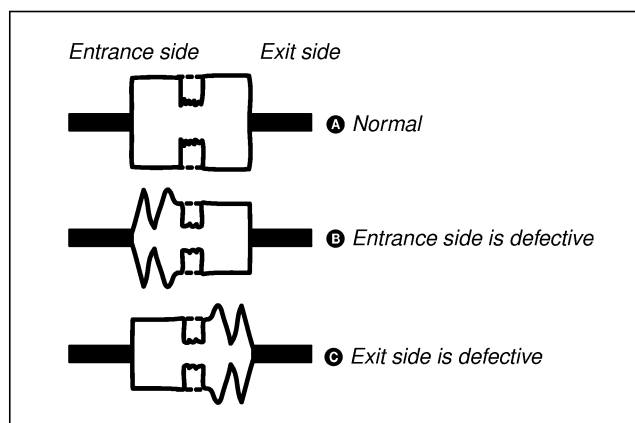


Fig. 4-2

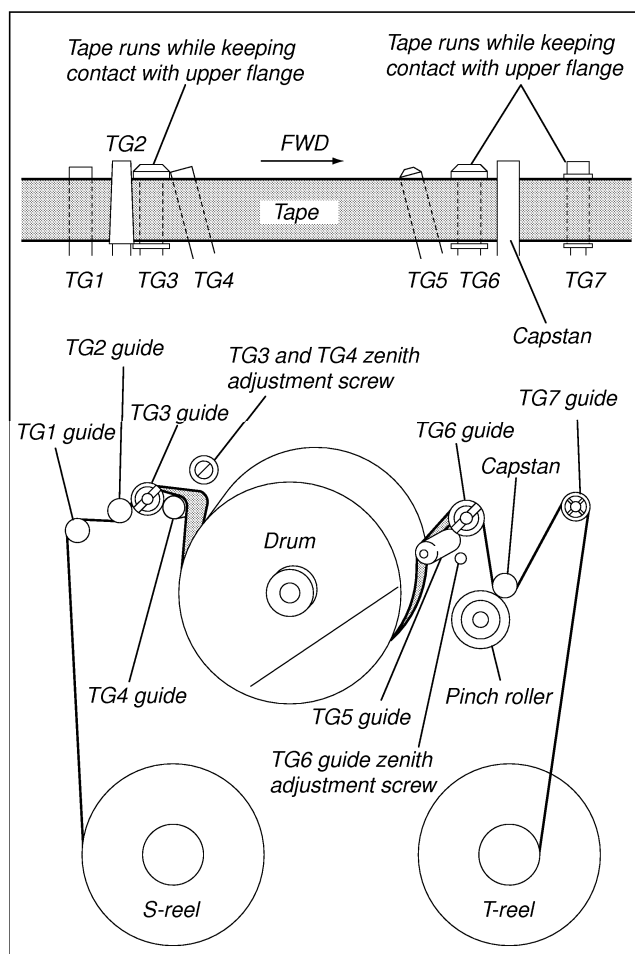


Fig. 4-3

4-2. Tracking Adjustment

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back.
- 2) Adjust TG3 guide until the envelope of entrance side waveform becomes flat.
- 3) Adjust TG6 guide until the envelope of exit side waveform becomes flat.

Note: Do not touch or adjust TG3 and TG4 guide zenith adjustment screw.

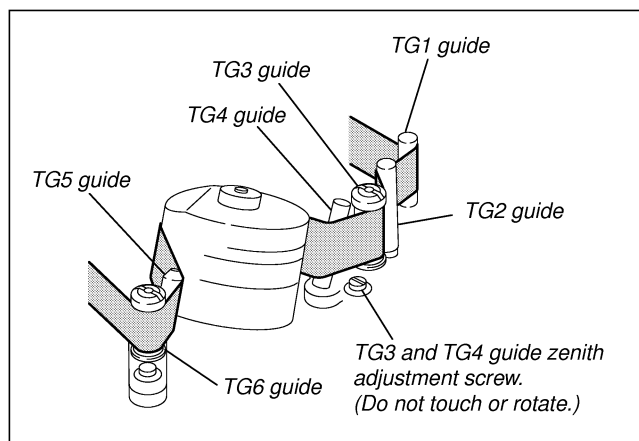


Fig. 4-4

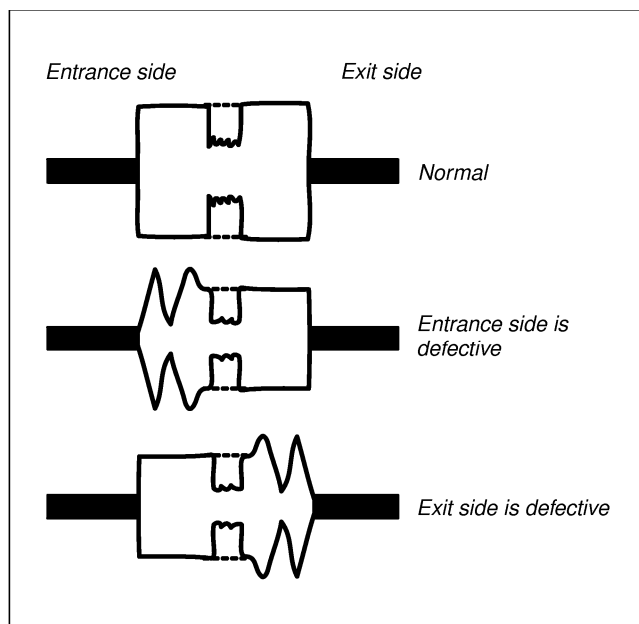


Fig. 4-5

4-3. TG3 Guide Adjustment

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back.
- 2) Run the tape in FWD mode. Confirm that tape runs while keeping contact with upper flange of TG3. If any clearance is found between top flange and tape, rotate the adjustment nut in clockwise direction until tape runs while keeping contact with upper flange of TG3.

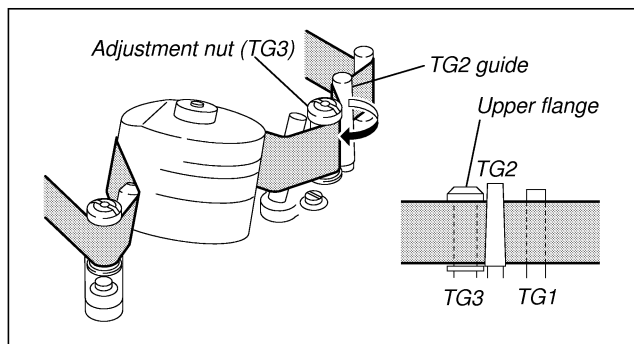


Fig. 4-6

When tape runs while keeping contact with upper flange of TG3, confirm that the tracking waveform does not change. If the tracking waveform has poor amplitude at the entrance side as shown, perform tracking adjustment of entrance side.

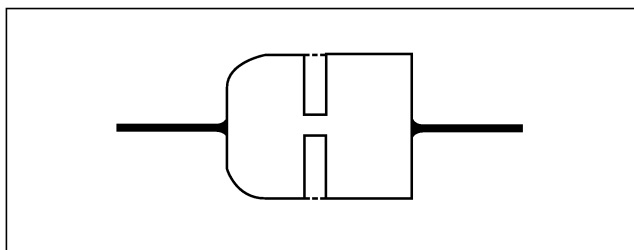


Fig. 4-7

After entrance side is adjusted, establish the RVS mode. Make an attempt to rotate the TG3 adjustment nut by 180 degrees in the counter-clockwise direction in order to confirm that tape rises upward. Upon confirmation, return the TG3 adjustment nut to the original position.

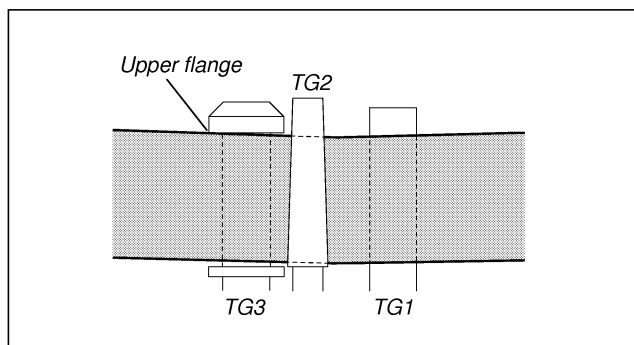


Fig. 4-8

4-4. TG7 Guide Adjustment

- 1) Establish the FWD mode. Confirm that tape slack does not occur in between capstan and TG7 guide. (Specification value: 0.5 mm or less of tape slack) If any tape slack occurs, rotate the TG7 guide to remove the tape slack.
- 2) Establish the REV mode. Confirm that RF waveform at exit side is normal. (Refer to Fig. 4-10.)
- 3) If the RF waveform at exit side has abnormality, rotate the TG7 nut by 90 degrees in counter-clockwise direction. Then perform steps 1) and 2) again.

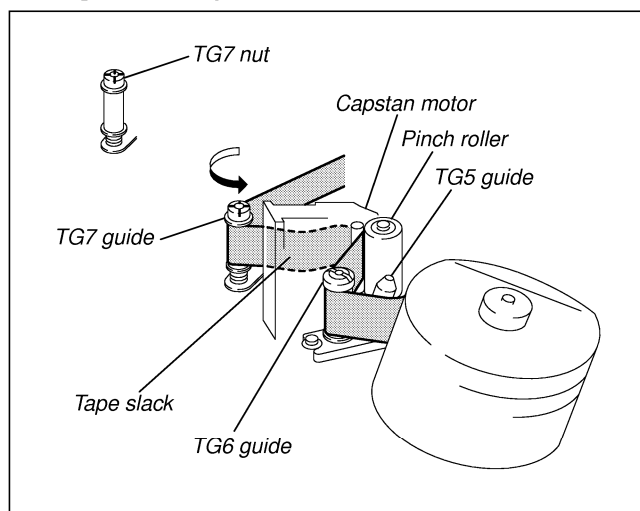


Fig. 4-9

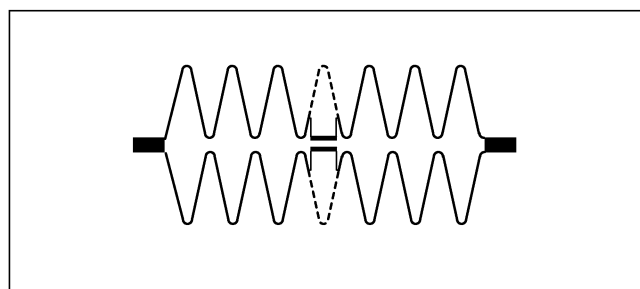


Fig. 4-10

4-5. Check upon Completion of Adjustment

1. Tracking Check

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back.
- 2) Confirm that RF waveform has amplitude of about 0.65A (65%) in the FWD mode taking the waveform amplitude during CUE/REV mode as A (= 100%). (Refer to Fig. 4-11.)

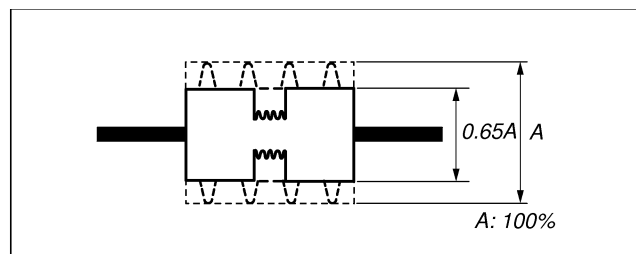


Fig. 4-11

- 3) Confirm that difference between the minimum amplitude (E.min) and the maximum amplitude (E.max) of RF waveform in the FWD mode is 30% or more taking the waveform amplitude during CUE (or REV) mode as A (= 100%).

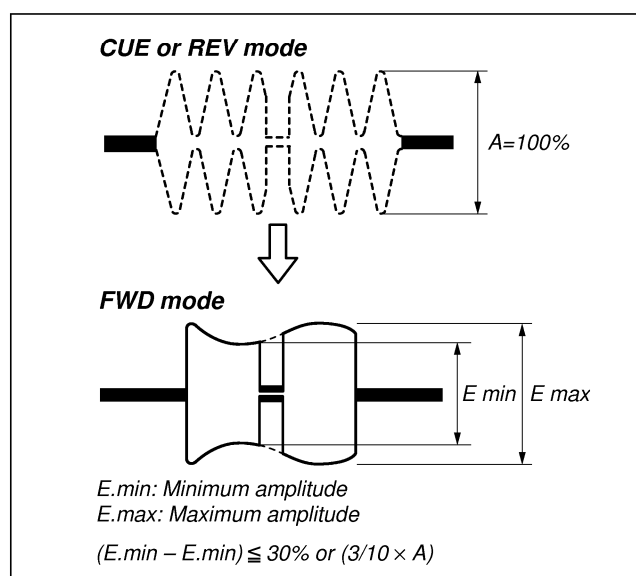


Fig. 4-12

- 4) Confirm that the RF waveform does not have excessive fluctuation.

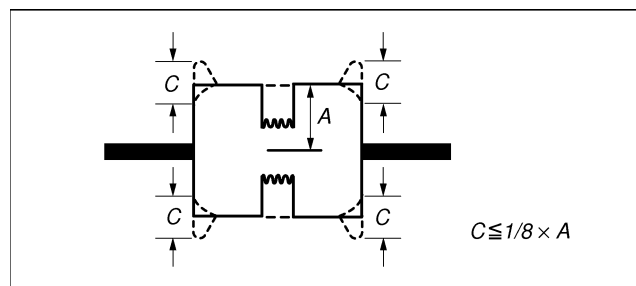


Fig. 4-13

2. CUE/REV Check

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back and enter the REV mode. Confirm that pitches between peaks of RF waveform are equally spaced. (Refer to Fig. 4-14.) If pitches between peaks of RF waveform are not equal, perform sections "4-2 Tracking Adjustment" and "4-4. TG7 Guide Adjustment".
- 2) Enter the CUE mode. Confirm that pitches between peaks of RF waveform are equally spaced. (Refer to Fig. 4-14.) If pitches between peaks of RF waveform are not equal, perform sections "4-2 Tracking Adjustment".

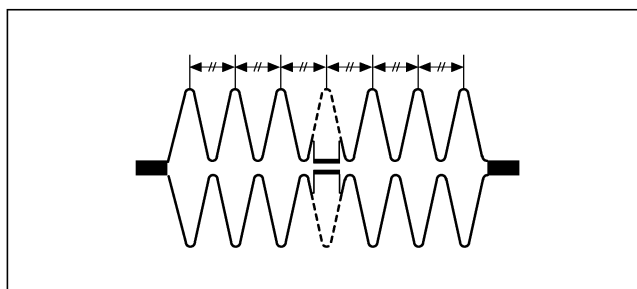


Fig. 4-14

3. Rise-up Check

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back.
- 2) Establish the FWD playback mode. Confirm that RF waveform rises up in two seconds or less. Confirm also at this time that tape slack does not occur at around pinch roller.
- 3) Run a tape in CUE/REV mode and FF/REW mode. After that play the tape back and confirm that RF waveform rises up in two seconds or less.
- 4) Repeat steps 2) and 3) repeatedly.

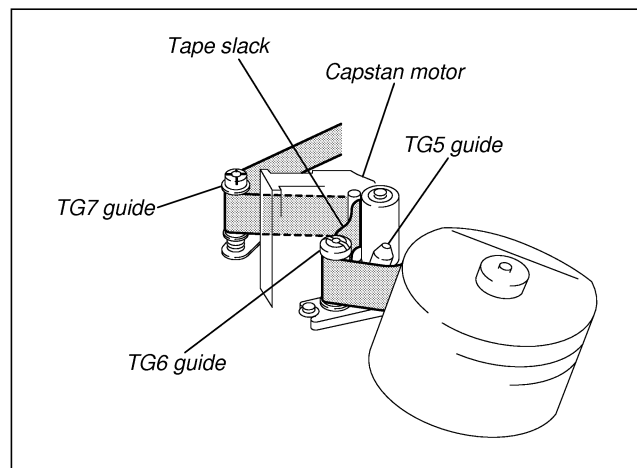


Fig. 4-15

4. Tape Run Check

Run a tape in CUE/REV mode. Confirm to see that major tape curl does not occur at TG2 lower taper, TG3 upper flange, TG6 upper flange and TG7 upper flange during CUE/REV mode.

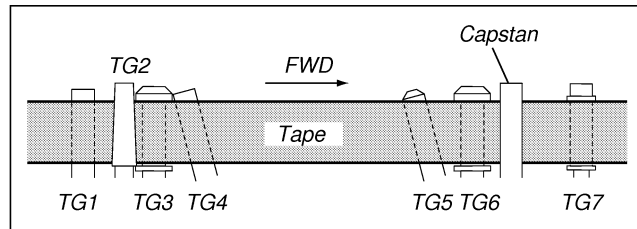
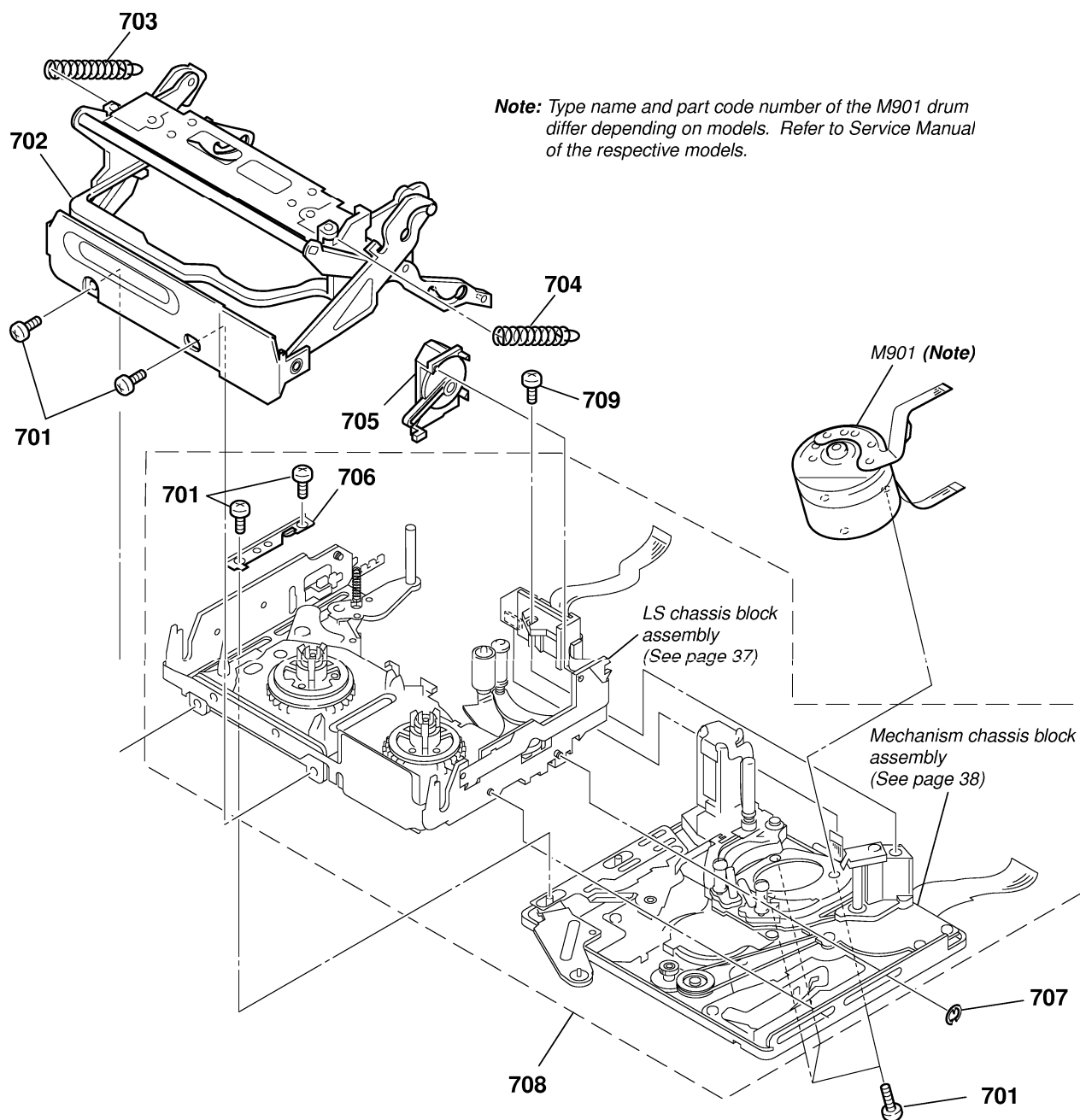


Fig. 4-16

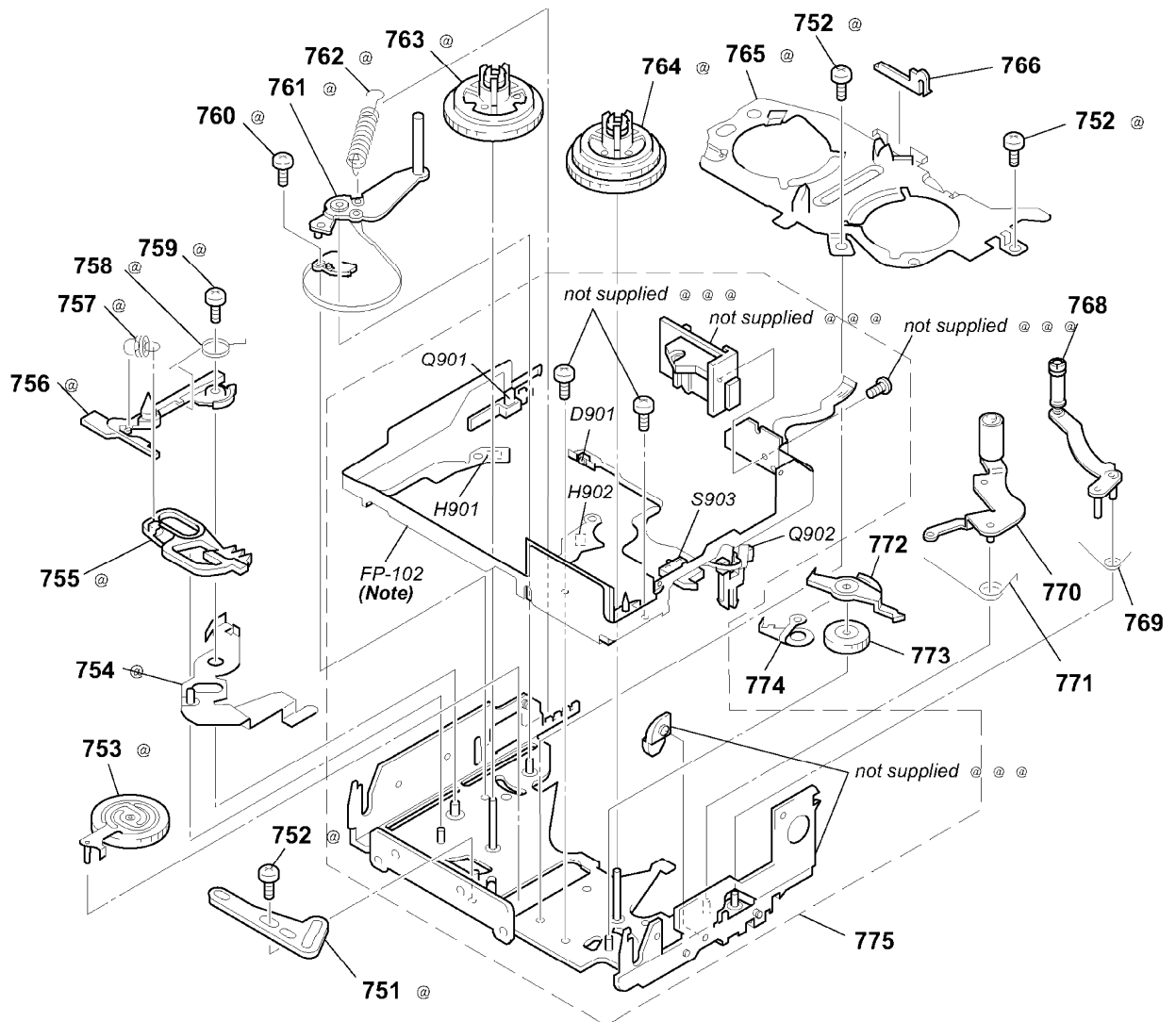
5. Exploded View

5-1. Cassette Compartment Block Assy, Drum Assy Block



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
701	3-703-816-14	SCREW (M1.4)		706	3-059-101-01	RETAINER, LS GUIDE	
702	X-3950-369-2	CASSETTE COMPARTMENT ASSY		707	7-624-102-04	STOP RING 1.5, TYPE -E	
703	3-059-082-01	SPRING, TENSION		708	A-7028-133-A	MD(J100) SUB ASSY (Y)	
704	3-059-208-01	SPRING (CASSETTE COMPARTMENT T)		709	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
705	X-3950-370-2	DAMPER ASSY		M901	— Note —	DRUM	

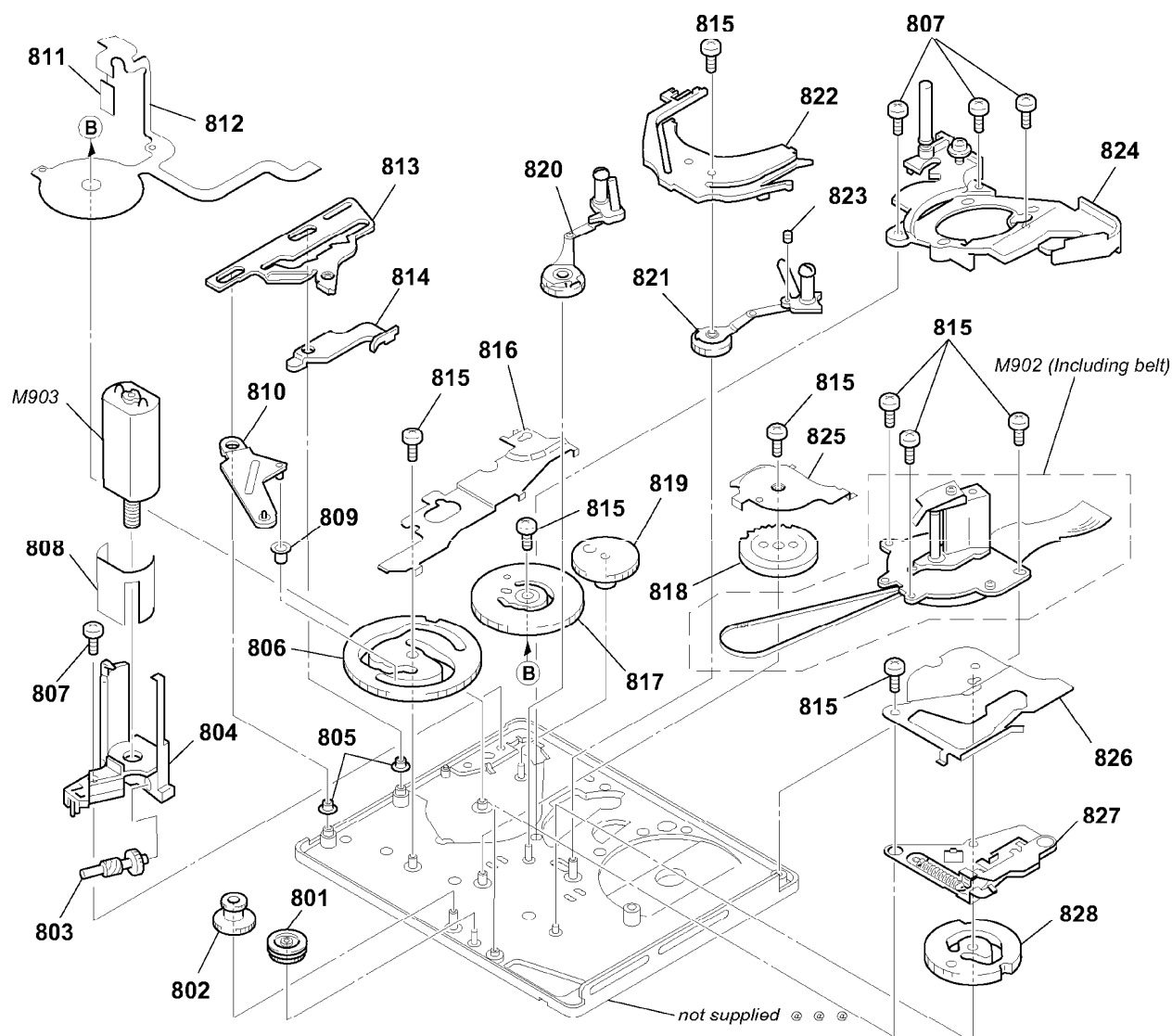
5-2. LS Chassis Block Assy



Note: FP-102 is included in the LS sub assy and is attached to chassis by hot-press.
Because installation of FP-102 requires a very high accuracy, FP-102 is not supplied as an independent service parts.

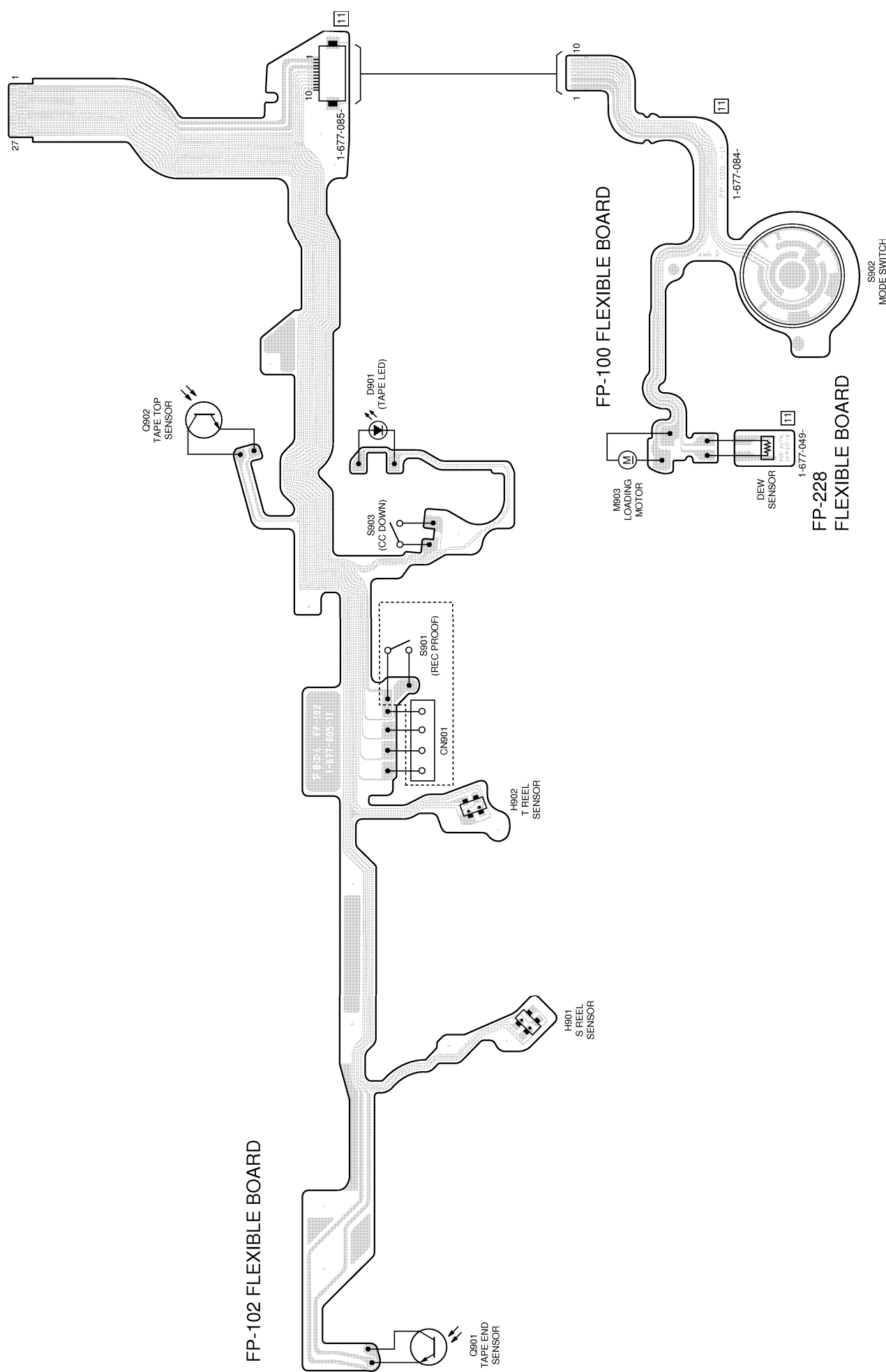
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
751	3-059-173-01	PLATE, LS CAM		766	3-059-093-01	RETAINER, LED	
752	3-059-100-01	SCREW (M1.4X1.4), SPECIAL HEAD		768	A-7094-819-A	TG7 BLOCK ASSY	
753	X-3950-364-1	GEAR ASSY, GOOSENECK		769	3-059-165-01	SPRING (TG7 RETURN), TORSION	
754	X-3950-371-1	ARM ASSY, BRAKE (S) DRIVING		770	X-3950-359-1	ARM ASSY, PINCH	
755	3-059-166-01	BRAKE (S)		771	3-059-161-01	SPRING (PINCH RETURN), TORSION	
756	3-059-146-01	POSITIONING (S), CASSETTE		772	3-059-170-01	BRAKE (T)	
757	3-059-167-01	SPRING (BRAKE S), TENSION COIL		773	3-059-171-01	GEAR (T), BRAKE	
758	3-059-169-01	SPRING (BRAKE S ARM), TORSION		774	3-059-172-01	SPRING (T), BRAKE	
759	3-703-816-14	SCREW (M1.4)		775	A-7094-816-A	LS BLOCK ASSY	
760	3-059-090-01	SCREW (M1.4X2.5), SPECIAL HEAD		D901	8-719-078-71	DIODE LA57A, SO (TAPE LED)	
761	X-3950-358-2	TG1 ASSY		H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)	
762	3-059-156-01	SPRING (TENSION REGULATOR)		H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)	
763	X-3950-365-2	TABLE ASSY, S REEL		Q901	8-729-028-71	TRANSISTOR PN 166, SO (TAPE END)	
764	X-3950-366-1	TABLE ASSY, T REEL		Q902	8-729-028-71	TRANSISTOR PN 166, SO (TAPE TOP)	

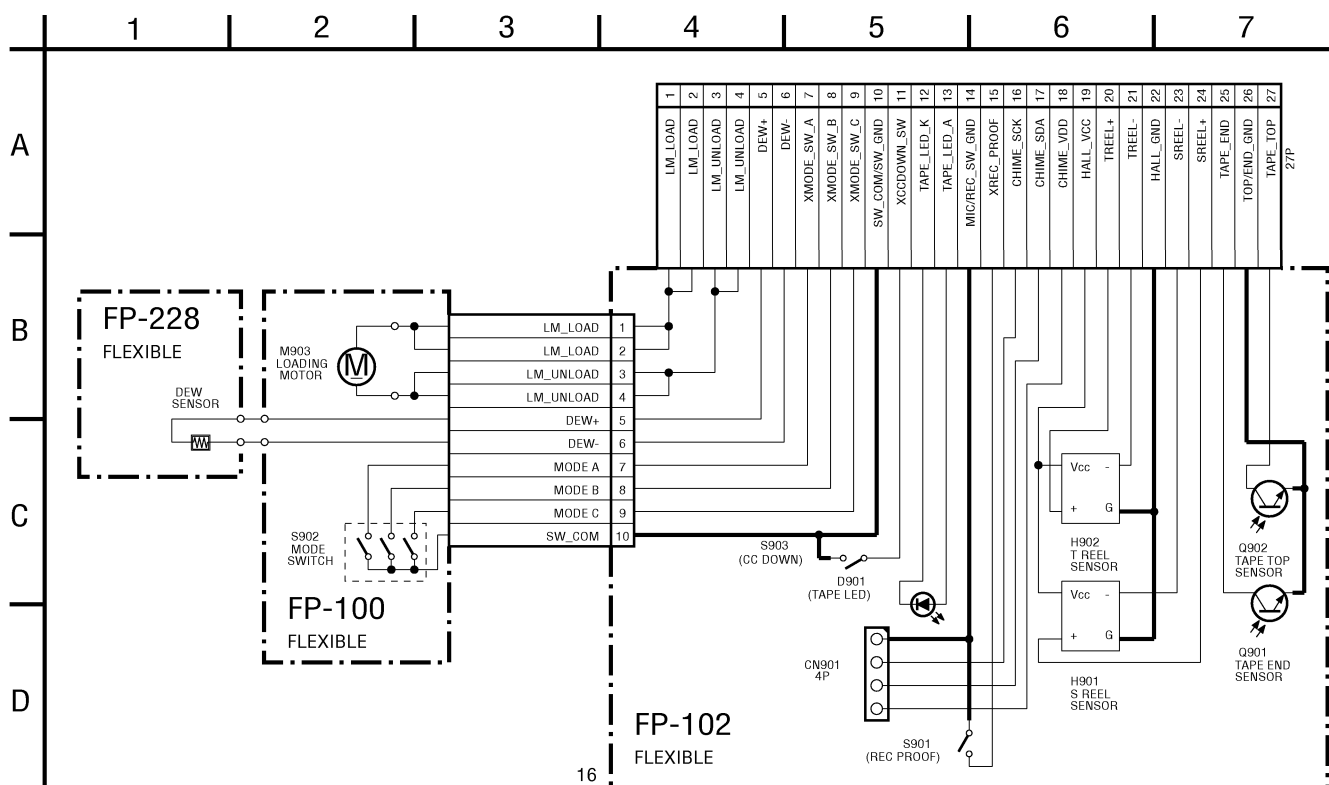
5-3. Mechanism Chassis Block Assy



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
801	3-059-211-01	GEAR, CONVERSION		816	3-059-117-01	COVER (A), GEAR	
802	3-059-220-01	GEAR, RELAY		817	X-3950-367-1	GEAR ASSY, MODE	
803	3-059-187-01	SHAFT, WORM		818	3-059-139-01	GEAR, GL DRIVING	
804	3-059-186-03	HOLDER, MOTOR		819	3-059-188-01	GEAR, DECELERATION	
805	3-060-002-01	ROLLER, LS GUIDE		820	A-7094-818-A	COASTER (S) BLOCK ASSY	
806	3-059-189-01	GEAR (A), CAM		821	A-7094-817-A	COASTER (T) BLOCK ASSY	
807	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD		822	3-059-126-01	RAIL, GUIDE	
808	3-059-225-01	SHIELD, MOTOR		823	3-962-914-01	SCREW (M1.4X2)	
809	3-059-191-01	ROLLER, LS		824	A-7094-822-A	DRUM BASE BLOCK ASSY	
810	3-059-190-01	ARM, LS		825	3-059-118-01	COVER (B), GEAR	
811	1-677-049-11	PWB, FP-228 FLEXIBLE		826	3-059-083-01	COVER (C), GEAR	
812	1-677-084-11	PWB, FP-100 FLEXIBLE		827	X-3950-368-1	ARM ASSY, PINCH DRIVING	
813	3-059-149-01	SLIDER, TG1 CAM		828	3-059-192-01	GEAR (B), CAM	
814	3-059-148-01	ARM, TG1 DRIVING		M902	8-835-685-01	MOTOR, DC SCD18A/C-NP (INCLUDING BELT)	

6. Printed Wiring Boards and Schematic Diagrams





7. Electrical Parts List

FP-102

Ref. No.	Part No.	Description	Remarks
		FP-102 FLEXIBLE (Not supplied)	

		(Ref.No.;6000Series)	
		< DIODE >	
D901	8-719-078-71	DIODE LN57A.S0	
		< HOLE ELEMENT >	
H901	8-719-067-74	DIODE HW-105A-CDE-T	
H902	8-719-067-74	DIODE HW-105A-CDE-T	
		< TRANSISTOR >	
Q901	8-729-028-71	TRANSISTOR PN166.S0	
Q902	8-729-028-71	TRANSISTOR PN166.S0	
		< SWITCH >	
S903	1-771-326-41	SWITCH, PUSH (1KEY) (CC DOWN)	